

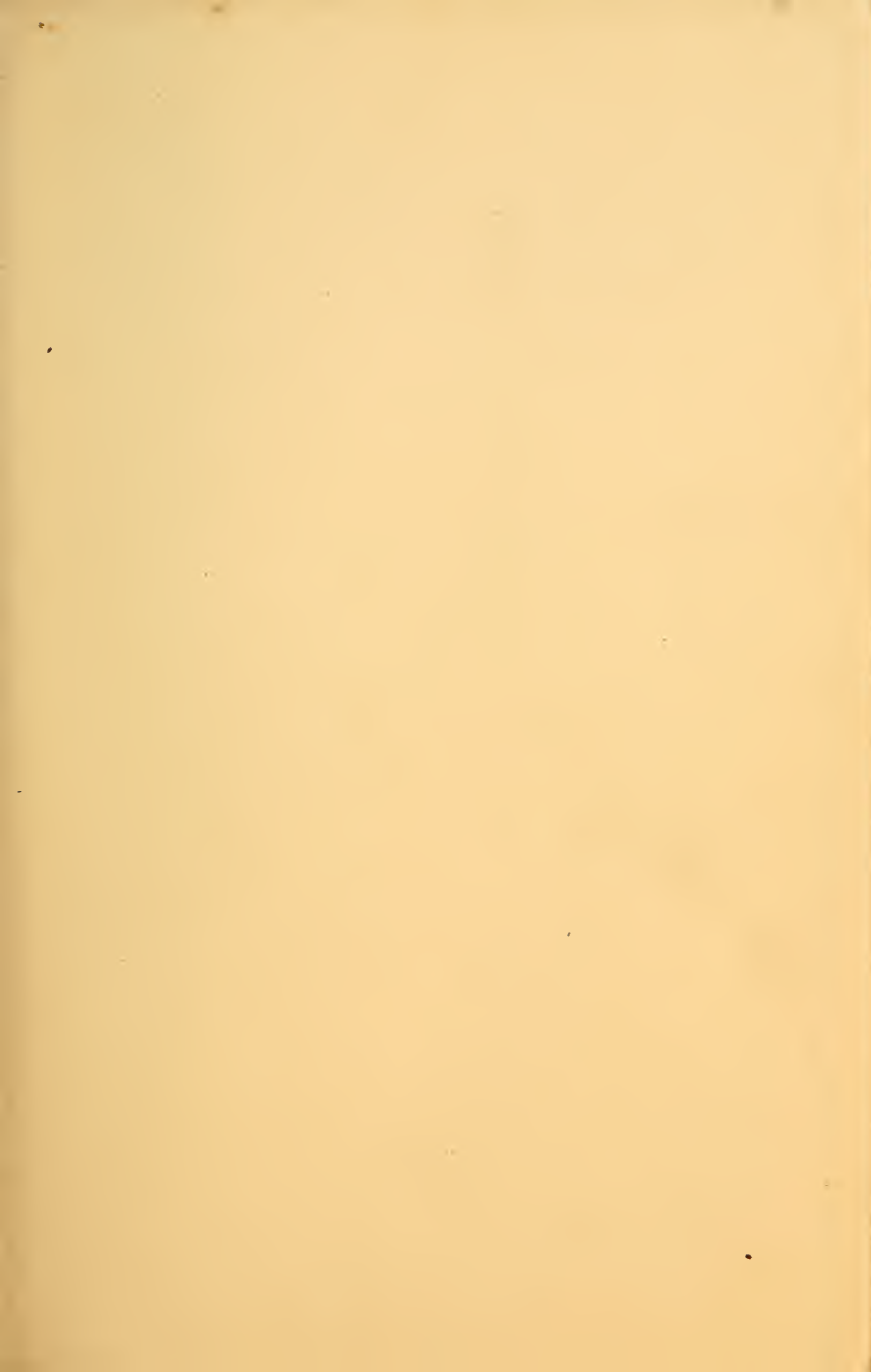
G I R L and
W O M A N

CAROLINE WORMELEY LATIMER, M.D.

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GIRL AND WOMAN



GIRL AND WOMAN

A BOOK FOR MOTHERS
AND DAUGHTERS

BY

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TO THE MEMORY OF

I. E. A.

THE FRIEND WHOSE SYMPATHY, COUNSEL,
AND ENCOURAGEMENT

HAVE BEEN MY LIFE'S BEST INFLUENCE,
WHILE HIS BELIEF IN THE POSSIBILITIES WITHIN MY REACH
REMAINS MY STRONGEST STIMULUS
TO EXERTION.



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PREFACE

WE have recently awakened to the fact that the most important period in life as regards the formation of character, instead of being the first decade as always supposed, is really the years between childhood and maturity. But although the attention of parents and guardians is now focussed upon this season as one of supreme importance, especially as regards girls, the sources of information concerning it are few and far between. Aside from Dr. Stanley Hall's monumental work, the size and extent of which somewhat restrict its field of usefulness, all information upon the subject of girlhood is sparsely scattered over a wide territory of periodical literature, much of it being contained in psychological and pedagogical journals or similar places remote from the main-traveled road familiar to the general reader. Moreover, these articles are commonly written by specialists in language which requires some interpretation.

To make this mass of scattered and semi-technical information available to the public at large, it required to be reviewed and sifted, in order that the main facts, as well as the more important of the views

and ideas suggested by them, could be presented in a simple and compact form, easy of assimilation by those most nearly concerned. The preception of this want has led to the preparation of this little volume, which, it is hoped, may place the valuable results obtained through the labors of thoughtful minds at the service of many who lack time or opportunity to seek them along the bye-paths of specialized literature. No pains have been spared to make the investigation complete and to seek authority at the fountain head.

It is with great pleasure that I avail myself of this opportunity to acknowledge the kindness shown me by friends in the course of my work. To Professor W. H. Howell of the Johns Hopkins Medical School I am indebted for council and suggestion concerning the first four chapters and to Dr. Elizabeth Hurdon, Assistant in Gynecology in the same University for criticism of the fifth chapter.

But most especially my thanks are due to Dr. Howard A. Kelly for the interest he has taken in my work and for his kindness in allowing my little book to enter the world under his protection. The service he has rendered me in this instance is but one of many helpful actions, each of which forms a rivet in a friendship which is one of my most valued possessions.

CAROLINE WORMELEY LATIMER, M.D.

BALTIMORE, June 22, 1909.

INTRODUCTION

I AM glad that Dr. Latimer has undertaken to write this much needed work addressed to women at large, and conveying a mass of useful information in language free from technicalities. I am of opinion that such instruction as is here given, with proper reserve as to special functions, is wiser than that conveyed in many of the popular cheap books touching upon these hitherto forbidden subjects.

A few centuries have wrought great changes in our views upon the training of women. But three hundred years ago the ordering of a girl's life was a matter of interest to nobody and the world at large agreed with Thomas Fuller of that time that "Daughters are silent strings sending no sound to posterity and losing their identity in their husbands." But this view-point is altogether changed, and the thoughtful, conscientious parent to-day holds a daughter's education, in the widest sense, as no less important than a son's. It is only of recent years, however, that we have begun to recognize in girlhood a distinct period in life with characteristic demands and necessities. How much we have neglected this critical age may be gathered from a glance over Poole's *Index*

of *Periodical Literature* for the last ten years, where the titles of papers dealing with either childhood or womanhood fill several pages, while those devoted to girlhood as a separate and distinct stage in life occupy only a few lines. During the last year or two of the decade, however, the articles on girlhood steadily increase in number, a significant change, which is due to the fact that the psychologists have recently devoted much attention to adolescence, and the interest thus aroused has extended to the public.

Psychological research has made it plain that no period in a woman's life is so important to herself or so full of interest to her natural guardians as the transition years of development from childhood to womanhood, and it has also shown that her evolution, instead of being extremely brief, as was supposed, is really a process of slow and gradual unfolding of both body and mind, occupying all the years between twelve and twenty-one. Another fact lately made evident is that the impressibility of this period of life is greater than any other, for the mind is more susceptible to influence, and the moral nature more plastic than at any subsequent time, while the individual sense of right and wrong becomes clearer than at an earlier age. For these reasons the principles instilled into a girl's mind at this critical stage of her life's journey are of paramount importance. There are two supreme objects to be kept in view at this

period: first, that she shall pass through its changes in a natural, happy, and healthful manner; and^o second, that her training shall be such as to fit her for the serious burdens of the years that are to follow when she must shoulder the cares and responsibilities of life. The burning question with those interested in securing her health and happiness is the best means of arriving at the desired end, and here there are still some differences of opinion.

In the days of our grandmothers custom decreed the formal separation of the sexes almost from babyhood, and all pursuits, work, and pleasures advanced along different lines, planned to fit the boy to cope with the world and fight his own battles, while the girl, who was no warrior, received no definite training and lived restrained within the narrow limits of her natural physical activities. A generation ago we awakened to the discovery that physical freedom and activity are as good and as necessary for a little girl as for a little boy, and that the principles of elementary education which produced the best results with boys succeeded equally well with girls. This illuminating idea at once deferred the separation of the sexes until adolescence, but as it was then still enforced bodily freedom for a girl ended in most cases with childhood, while her mental training was much less thorough than that of her brother.

To-day we hold that a system which condemns

outdoor life and activities as unwomanly, and sacrifices sound learning for mere drawing-room accomplishments is fundamentally wrong. We have, therefore, changed our tactics and proceeded to give girls the same advantages as boys, both physically and mentally. The one point now at issue is this: Is a girl best fitted for life by precisely the same training as a boy, or is some modification desirable in conformity with the elementary difference of sex?

I think that those who say: "Let there be no difference whatever," fail to give sufficient weight to the issues involved and overlook the fact that when boys and girls reach puberty the fundamental difference between them, hitherto latent, asserts itself openly and emphatically and cannot henceforth be ignored without serious consequences to the proper development and sound health of both body and mind in the girl. The establishment of puberty in itself is always a strain upon the physical and mental forces, often severe enough to affect the general health or the central nervous system. For both sexes puberty is a period requiring especial care and watchfulness and when it is over, and the fundamental differences between the sexes are fully established, the function of menstruation with its cyclical changes and their demands upon the nervous system continues to call for consideration in young women. Few girls or women can treat this function with entire disregard, except at

their peril. I do not say that the menstrual periods ought seriously to interrupt the routine of daily life in a healthy girl, and any manifest invalidism may be accepted as evidence of depressed health. But undue exertion, prolonged and repeated, at such times almost inevitably results in an exhaustion of the nervous system, manifested, sooner or later, by excessive periodical suffering or by some more general disturbance.

To illustrate this fact take the athletic sports now so general for girls. A boy who plays on his team at school or college is under no necessity for heeding the times and seasons of his games, being as fit to play one day as another, but almost every girl, under like conditions, must consider a regularly recurring interval when her nervous force is so taxed by the demands of her economy that the excessive effort demanded by the game places her at a disadvantage for the moment, beside exposing her to the risk of lasting ill effects, even so great as life-long invalidism. Some strong vigorous girls do sometimes play tennis, basket-ball, and hockey at such times with impunity, but no girl can risk the strain of a match game without danger of suffering from it sooner or later, not only because of the extreme bodily effort, but because of the nervous tension arising from the excitement of competition together with the emotional disturbance inevitably attending success or defeat.

Excessive nervous strain is, in fact, the key to the whole situation and we find that the sex limit imposed by means of it is as definite on the intellectual side of life as it is in the sphere of the body. The present system of education for women, with all its improvements, has the defects of its qualities in its ever insistent emulation and competition with their resultant tension and excitement. An ambitious girl with examinations awaiting her during the menstrual period is exposed to risks similar to those of the athletic field and is under the same disadvantages as compared with her brother. But while there are many who realize the dangers of physical over-exertion during menstruation, few seem alive to the, perhaps, greater risks of mental high pressure at such times and at an age when the emotional nature is most excitable.

To my mind these observations teach us that a woman's physical well-being, under existing social conditions, depends largely upon her willingness to acquiesce in those moderate and proper restrictions imposed by nature upon her sex. I have used examinations and athletic sports simply as a means to illustrate my position, which is: first, that a woman must avoid excessive effort of body or mind during the menstrual periods and that if she neglects this salutary precaution her health will suffer in the long run; second, that this fact, of necessity, prevents her from

standing on a perfect equality with a man engaged in the same occupations. Just what precautions are called for must be determined according to the conditions in each individual case; this question is fully discussed in one of Dr. Latimer's chapters. We may draw one general conclusion, however, which is that while experience has shown that girls are in every way better for the removal of artificial restrictions upon their activities, it is also plain that any attempt to treat the restrictions imposed by Nature as though they did not exist, results, as a rule, in harm to body and mind.

Some of the partisans of exact uniformity in the training of the sexes who are unwilling to admit any necessity for caution whatever, point with conviction to a certain proportion of women who are able to disregard the menstrual function without suffering for doing so. But this argument overlooks the chief difficulty, which is that the mischief done by the neglect of a periodical conservation of the forces does not usually show itself immediately and may take the form of some disturbance of a general character. Indiscreet and prolonged exertion during the periods, during a series of years, may be a factor of importance in the production of nervous prostration, though the causal link in the chain may have long since disappeared.

But, in my opinion, the greatest harm done by an

education which teaches a girl to regard her sphere in life as identical with that of a boy is that by suggestion or implication it encourages her to despise the duties belonging to her sex by right of Nature, thereby striking at the roots of her real happiness. It is not that a woman is in any sense whatever inferior to a man, but that her sphere is a different and a complementary one. A man and a woman each does many things that the other cannot do, but in their respective spheres how distinct, how different they are! The very best our civilization has yet offered has been the higher education of our daughters. But the theory that public offices and public works are as much the business of a woman as of a man, holding public claims as more honorable and more worthy of attention than those of the home, is injurious alike to women and to the public they desire to serve. Philanthropic occupations are of paramount importance under certain conditions, and the woman who does not marry often finds in them her vocation and her salvation from the narrow, gossiping existence once the lot of the old maid. These activities, however, must ever be of secondary importance to the married woman. The woman who devotes herself exclusively to outside interests, I believe, contributes less to life and gets less from it than she whose activities lie mainly or wholly in the sphere of the home.

There exist certain conservatives who, while they

fully appreciate the limitations imposed by the difference of sex and the importance of the claims upon women in her own peculiar sphere, are sometimes apt to do our girls an injustice from an entirely opposite point of view. These people incline to the notion that if a girl marries she not only does not need, but may be actually hurt by more than an elementary education; while, on the other hand, they admit that, should she remain single, it is well that her mind should be cultivated extensively in order to open up numerous avenues of interest and activity. If this idea were rational, the difficulties consequent upon it would be serious indeed, since girls cannot be divided at birth into queens and workers like bee larvæ. Fortunately, the difficulty, when squarely faced, disappears. Data thus far collected touching higher education for women show that learning in itself does not interfere, but rather adds to a girl's usefulness as a wife or mother, nor does college wisdom, as Matthew Arnold expressed it, "affect her chances" of matrimony. And it is surely but a shallow conception of the marriage state which holds that there is no room in it for knowledge and a diversity of interests. A healthier, saner view is that which holds that whatever develops a girl's faculties and broadens her outlook upon life makes her better fitted for her work in the world, whether that work is ultimately carried on in the single or the married state, and that

the more cultivation, the more information, the wider the interests a woman brings to bear upon her intercourse with her husband and her children the more ennobling and elevating are their mutual relationships.

Finally, I desire to repeat, that the sum of what I have been saying is this: In their practical, daily, human relations the sexes are never precisely alike except during the earliest years of childhood. For the first ten years of life a boy and a girl may be looked upon and treated as identical, though even then the foreshadowing of the coming changes are always visible to keen eyes. But with the approach of puberty the fundamental differences, everywhere stamped upon the sexes in nature, become sharply defined and the breach thus made widens with the succeeding years until maturity finds the man and the woman two distinct entities, complementary in all their future relations. It is the office of the wise physician, as well as of the philanthropist and of the educator, not to minimize but to recognize these differences and to lead young women wisely into the paths designed for them. The book before us is a notable effort in this direction.

HOWARD A. KELLY, M.D.

BALTIMORE, June, 1909.

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GIRL AND WOMAN

CHAPTER I

PHYSICAL DISTURBANCES OF GIRLHOOD

General considerations — Changes in the bones and muscles — Curvature of the spine — Changes in the heart and arteries — Blushing — Anemia — Chlorosis — Changes in the lungs and thorax — Changes in the skin — Eruptions — Changes in Digestion — Appetite — Teeth — Changes in the organs of special sense — Voice — Smell — Hearing — Vision — Changes in the nervous system — Chorea — Stammering — Sick headache — Neurasthenia — Epilepsy — Conclusion.

THE period of a girl's passage from childhood to womanhood is characterized by changes of the most radical and far-reaching description. Up to this time her development, both of body and mind, has been steady and uniform, following definite lines and not subject to sudden checks or advances. Now she reaches a point when a hitherto dormant force awakens within her, in response to which she enters upon a phase of what has been called *tumultuous growth*.

The impulse to activity, now making itself felt for

the first time, proceeds from the great elemental instinct, *sex*, which is henceforward to be one of the most powerful agencies in her life. The central feature of this period is, therefore, the development of the reproductive organs and of the functions connected with them, but associated with these primary changes are secondary ones, both mental and physical, which extend their influence in all directions. Almost every organ and system in the body begins to grow with startling rapidity though at different rates of speed, so that relative proportions are everywhere changed, sometimes permanently, in other cases for the time being. The mind, and even more the emotions, show evidence of change to a marked degree, the character develops, the moral sense begins to act independently, the perceptions become more acute, the susceptibilities more active, until finally, in the space of a few brief years, the child has disappeared and a woman, in whom, perhaps, not a trace of the child remains, occupies her place.

It is needless to say that this period of life is one of supreme importance in a woman's life. Not only her immediate well-being but her well-being in the future depend upon the manner in which she passes through it. The phase of development in itself, however, is perfectly natural, and the changes incident to it are only such as lead naturally to a normal womanhood.

Next to the sexual changes, which will be discussed elsewhere, the most striking feature is a sudden and rapid increase in height and weight, that begins about thirteen. The difference in height taking place in the course of a few months may be so great as to make it seem as if we had to do with a different girl; a tremendous interval all at once appears between her and the brothers and sisters next to her in the family, and she outgrows her wardrobe so fast that it is almost impossible to keep her in clothes. This rapid growth in height comes to an end (on an average) about fifteen and the final stature is then nearly, if not quite complete. It is true that a girl may, and not infrequently does, continue to grow for several years longer, but the process is comparatively slow and the addition to her height inconsiderable.

This increase in height is accompanied by an increase in weight, but not commonly a proportionate one, the advance in height being the more rapid of the two. With girls this disproportion between height and weight is not so marked as with boys, because in a girl, the development of the figure and of the hips, with all the attendant curves, does a great deal to conceal the apparent loss of tissue. There is a great deal of difference, however, between individual girls in this respect, some of them showing but slight signs of womanly development until the period of rapid growth is over, when they begin to fill out rap-

idly; while with others, the womanly changes proceed side by side with the increase in stature.

The basis for all this rapid growth is profound changes in the bones and muscles. The rapidity of these changes, as we have just said, is not proportionate, and the disproportion between them is responsible for much of the awkwardness and clumsiness of movement so characteristic of the age. When the long bones grow more rapidly than the muscles attached to them we have the familiar "growing pains," while when the muscles grow faster than the bones there is extreme mobility of the joints. The various contortions of the limbs and of the fingers and toes, to which girls of thirteen and fourteen are so much addicted, are possible at this time by reason of this mobility, which disappears in the course of a few years. The power of muscular co-ordination also develops greatly, so that this is the time when manual training in all pursuits or trades requiring dexterity and delicacy of touch ought to begin. If it is not undertaken until later, when the mobility has diminished, the same degree of skill can never be attained, but it cannot be carried very far earlier, for the necessary power of co-ordination between brain and muscle is not yet developed.

A danger belonging especially to this period of growth is curvature of the spine. All the bones of the body are first formed in cartilage and gradually

converted into true bone by the deposit of lime salts, a process not entirely complete before the twenty-fifth year. While the bones are still largely cartilaginous, they are soft enough to yield easily to pressure, a fact which is made use of by certain races to produce distortions which they consider beautiful. The most familiar example of this practice is the foot-binding of China, and another is the distortion of the shape of the head admired by certain of the North American Indians, who produce it by tying bits of board to a young child's skull. In early girlhood the spinal column is still not fully hardened, and is therefore easily affected by pressure. When the period of rapid growth begins, the increase in height is often so sudden that a girl finds it hard to hold herself erect and is apt to assume slouching, ungainly positions, all the more because she feels herself awkward and uncomfortable. Any attitude which throws the spinal column out of its normal line, such as standing with the weight of the body thrown altogether on one foot, or keeping one leg crossed over the other without reversing the position, is likely to cause a curvature of the spine. The sitting posture is apt to result in spinal curvature when the head rests always on the same hand while reading, or the body is inclined to the right side while writing, both of which attitudes are constantly assumed by school girls. Occupations or trades which require the continual use of the right

hand and arm, such, for instance, as dressmaking, have the same result, if girls begin to work at them while still quite young. Rightsided lateral curvature at about the level of the arm is the result of this particular error of position. It is the most common of all in the different curvatures, no doubt because there are so many occupations which oblige the incessant use of the right arm and hand; but there are other curvatures associated with other faulty attitudes. The best preventive of this state of things is abundance of active physical exercise in the open air, as well as the daily use of systematic exercises, either at home or in a gymnasium. If a curvature has already begun, a great deal can be done to correct it by special gymnastic work under trained supervision, without resort to mechanical appliances.

Next to the changes in bone and muscles those in the heart and arteries are most significant. In childhood the heart is relatively small and the arteries large, but at maturity this state of things has been reversed, the difference being caused by increased growth on the part of the heart in the years between twelve and twenty-five. Not that the arteries cease to grow, but they do so more slowly than before, while the heart grows faster. With the growth of the heart it acquires, of course, additional strength, and as the arteries are but little larger, the pressure of the blood within them is increased; this in-

creased pressure resulting in great activity of both mind and body, which finds physical expression in a craving for movement and muscular action of any kind, which it is cruelty to repress.

The whole circulatory system is in a state of great excitability which manifests itself in many different ways. Coldness of the hands and feet from feebleness of the circulation in the extremities, is quite frequent and occasionally, though more rarely, there are sudden flushes or chills over the whole body. Another disturbance of the circulation especially frequent in youth because of the peculiar conditions of the period is *blushing*. The stimulus in the act of blushing is, of course, a mental one, being the consciousness of self aroused by some external impression, but the impulse thus aroused, transmitted through the nervous system to the superficial blood vessels, results in a rush of blood to the face. Exactly why the face should be the locality affected by the impulse has not been satisfactorily explained. We do know, however, that blushing is not necessarily confined to the face or even to the neck, having been observed, in certain cases, to spread over the whole body. Youth, as we shall presently see, is a period of intense self-consciousness, and this fact, together with the disturbed condition of the circulation at that time of life, explains why blushing is so much more common at that time than later in life.

It sometimes happens that the changes in the blood vessels affect the veins as well as the arteries, and when this is the case there may be varicose veins of the lower extremities, although it is a rare occurrence. Bleeding from the nose, which is quite common in girlhood, is partly due to the disturbed state of the circulation and partly to poverty of the blood itself.

It is not surprising that such significant changes in the heart and arteries should sometimes be accompanied by disturbance of the heart's action. As a matter of fact, irregularity and palpitation, with shortness of breath and a feeble or intermittent pulse, are not at all uncommon in young girls. Whenever these symptoms occur a doctor ought to be consulted and his advice followed implicitly. In the large majority of cases there is no disease of the heart, but only a physician can determine whether it is absent; moreover a girl who shows such symptoms requires more hours of rest in the recumbent position than she would under ordinary conditions, and it is for a doctor to decide how many they should be, and also what amount of physical exercise is advisable, too little being nearly as bad as too much.

Changes in the composition of the blood itself are not uncommon in girlhood. The most frequent of these is *anemia*, or simple poverty of the blood, caused by deficiency in the number of red cells of the blood or in their capacity to nourish the tissues. This

condition is marked by pallor, with great languor and disinclination to exertion, both mental and physical, quite out of keeping with the usual activity of the age. Whenever a girl who has hitherto been bright and active, both physically and mentally, begins to feel her school work too much for her, and play such an effort that she would rather sit still and read she is probably anemic, especially if she is losing color. But anemia is sometimes present without pallor. Headache is a common accompaniment of anemia as well as a tendency to hemorrhage, shown usually in bleeding from the nose. Sometimes the blood is seen to be a lighter red than it should be. Simple anemia usually yields readily to treatment, especially iron and cod-liver oil. Another condition associated with changes in the blood and belonging almost exclusively to this period in life, is *chlorosis*, more commonly known as green-sickness. It is so closely connected, however, with irregularities of menstruation, which are one of its chief symptoms, that it seems better to consider it with that subject.

The vital capacity of the lungs, that is to say, their capacity for holding air, increases very much in early girlhood. There seems to be some difference of opinion as to the exact period between twelve and sixteen when the increase is most decided, but all observers agree that it is greater during these years than at any other period of life. This increase in

vital capacity is accompanied, as we should naturally suppose, by an increase in the size and weight of the lungs, and as the heart is rapidly becoming larger, it is plain the circumference of the chest must enlarge in order to accommodate the growth of the organs within it. As a matter of fact, the ribs do grow rapidly and at the same time harden rapidly from deposit of lime salts. They do not become completely ossified, however, before twenty, and up to that time their shape can be easily modified by pressure, especially during the years just following childhood, when they are still largely cartilaginous. This fact has a most important bearing upon the question of girls' clothing. Any considerable constriction around the ribs will result in a change of their shape, more or less marked according to the degree of pressure and the age at which it occurs. It also interferes with the development of the lungs and makes them more liable to tuberculosis. Tight lacing at this period is productive of much more harm than it is later, for the whole shape of the thorax may be altered by it.

There can be no doubt that the digestive organs undergo important changes during girlhood, but the nature of these changes is not clearly understood and it would not be profitable to discuss them here. Indigestion is not so common in youth as it is in later life, and when it does occur is usually of temporary duration, provoked by imprudence of diet. But this

period of life is characterized by striking peculiarities of the appetite, which in youth is normally a hearty one to meet the demands made by rapid growth; sometimes, especially with girls who live in cities, it is entirely lost, sometimes it is capricious, and occasionally actually perverted. This disturbance of appetite arises probably from radical changes in the nutrition of the body which we do not yet understand. Foods formerly disliked now become attractive, and on the other hand, those hitherto preferred are now distasteful. A craving for sweets is quite common, and still more one for acids; indeed the latter taste is almost always present at some period of girlhood. These cravings are the expression of some need associated with new processes of growth and necessities of nutrition. One fancy in particular, which is not by any means uncommon, we know can be explained by the necessity for lime salts in the growth of the skeleton. Bone formation is effected by the deposit of lime salts in the pre-formed cartilage, the material for it being supplied in the food. The formation of bone tissue goes on all through childhood, but with the sudden increase of growth in the bones in early youth the demand for material becomes suddenly much larger, and with it arises a craving for articles that contain lime salts, even though they are quite unsuited for food. This explains the fancy displayed by some young girls for eating chalk, slate pencils, plaster

from the walls, and similar articles. An excellent description of this particular fancy, as well as some of the other physiological features of girlhood, has been given us by Oliver Wendell Holmes in one of his humorous poems:—

“Now six young damsels slight and frail
Next claimed this kind young doctor's cares.
They all were getting thin and pale
And short of breath on mounting stairs;
They all made rhymes about sighs and skies
And loathed their puddings and buttered rolls,
And dieted—much to their friends' surprise—
On pickles and pencils and chalk and coals.”

In course of time, when the changes taking place in the digestive organs during girlhood are better understood than they are to-day, we shall probably understand other caprices and cravings. The more serious forms of actually perverted appetite, in which there is a craving for dirt and other absolutely repulsive articles, are associated with some mental disturbance. In the future they also will probably be understood, but at present they are among the curiosities of medicine.

The second set of teeth have appeared before the beginning of the period we are now considering, but the last four molars, commonly known as wisdom teeth, make their appearance between fourteen and twenty-five. The size of the jaw in human beings

has become so reduced under the use of cooked food and other influences of civilization that not infrequently there is difficulty in finding room for these belated intruders, and when this happens they may give trouble and require attention from a dentist.

Certain changes in the skin are peculiar to girlhood. The sensibility of it is sometimes greatly increased and at others diminished. When it is lessened the usual perception of pain may be almost lost, and this is the reason why girls will occasionally find amusement in pricking themselves with pins, in a manner startling to older persons. The tactile corpuscles at the ends of the fingers, concerned with the sense of touch, become more highly developed at this time and the perceptions connected with them more acute. This increase of tactile perception is one of the reasons why manual training is so much more effective at this age.

Eruptions, especially on the face, are very common in girlhood; so much so, in fact, that hardly any girl wholly escapes them. Their cause is not altogether clear, but probably they are associated to some extent with the changes in the circulation, and there is no doubt they are often connected with constitutional disturbances such as anemia or indigestion. It may be because they are so extremely common that such eruptions do not always receive the attention they deserve. There is a popular impression that they ought not to be interfered with and will right them-

selves if only they are let alone, which is so far true that when they are slight or intermittent, they may be safely left to time. But any eruption that is even moderately severe, or that persists for months at a time, should have attention from a skin specialist, if possible; or at any rate from a physician. It is true that they almost always disappear eventually without treatment, but the interval before their spontaneous disappearance may extend over years and in the meantime the surface of the skin is more or less permanently injured and the clearness of the complexion lost, to say nothing of the mortification and distress of mind endured by a sensitive girl. The fact that skin troubles are often caused by some constitutional difficulty is quite generally recognized, but unfortunately it is associated with another popular error, namely, that the cure of the local disorder will be followed by some grave crisis in the constitutional difficulty. A common saying in regard to them is that, "Whatever it is, is better out than in." This idea is altogether without foundation. If there is a constitutional cause, the skin trouble will not get well, of course, until it is cured, but the necessity for finding out and removing the underlying difficulty is only an additional reason for professional advice.

There are two excellent and perfectly harmless remedies for these eruptions at everyone's command. The first of these is regulation of the bowels. Almost all

skin troubles are associated with constipation and a marked improvement nearly always follows its relief. The other remedy is to wash the face every night with water as hot as can be borne and a good soap, such, for instance, as white castile. Most skin troubles and *acne*, in particular, which is by far the most common of them, are caused by a torpid condition of the glands in the skin with deficiency of secretion, and nothing does so much to relieve this difficulty as stimulation with heat, moisture, and a good soap.

The organs of special sense undergo certain transformations at the same time as the more general changes. The voice with girls, does not undergo the marked variations that are present with boys, because a girl's larynx does not grow so large, hence the period of change in her is not accompanied by the grotesque sounds which characterize it in him. But about the age of fifteen the girl's childish voice disappears, yielding quietly and without any distinct epoch of transition, to the woman's voice with its higher pitch and undefinable quality of sex.

The sense of smell passes through distinct alterations of sensibility. Children are extremely insensitive to odor of any kind; a perfume must be very heavy or very penetrating to give them pleasure, while on the other hand, a bad smell must be very strong to disgust them. But with girlhood the perception of

odors becomes much keener and the capacity for enjoyment or disgust is enlarged. Delicate perfumes are more agreeable than heavy ones, and peculiarities which formerly were not perceptible now give exquisite enjoyment. Evil odors, on the other hand, to which children are wholly indifferent, become overpoweringly disagreeable. This fact is sometimes amusingly illustrated by the change of opinion that takes place about this time in life as to the attraction of a visit to the monkey house at a Zoölogical Garden. The little girl, who delighted in it up to the age of fourteen or thereabout, will suddenly discover that the atmosphere is intolerable, a fact of which, up to this time, she was happily unconscious. This increase of perception is often considered a mere affectation and girls have to bear more or less ridicule in regard to it; but it is really one of the phases of normal development, and a girl has no more power over it than over the change in her voice, or her bones, or her muscles, though the self-consciousness of the period may sometimes foster it.

Hearing undergoes little or no change as far as acuteness in the perception of sound is concerned, but as an avenue for enjoyment it develops greatly. In childhood there is usually a complete indifference to music, unless there is a distinct talent for it, and when no such talent exists the same indifference will return in maturity. But during the period of youth,

even girls who are naturally unmusical find pleasure in melody, especially of their own creation. The desire to perform upon some kind of instrument, notably the banjo, is almost universal. Probably, however, the development of tactile perception and muscular co-ordination has something to do with the nascent wish to be a performer.

The use of the voice, from a musical standpoint also begins to be a source of pleasure at this epoch. Mere animal spirits, no doubt, have something to do with enjoyment of its use in melody, but a real development of aural perception is evident from the fact that the harsh discordant sounds which in childhood were unnoticed or even agreeable, now become increasingly unpleasant. This is a point of difference between boys and girls, for boys continue to carry their love of uncouth sounds, such as college yells and war-whoops, into early manhood.

The normal changes in vision at this period are not marked. The perception of color becomes more acute and more intense, and with it appears the love of exceedingly bright colors, which is so characteristic of youth. As time goes on, however, crudity of taste is outgrown, being sometimes succeeded by exquisite delicacy of color-feeling. The judgment of form also becomes more accurate, and the perception of beauty more developed. Abnormal changes in the eyesight occasioned by over-strain are sometimes quite marked,

and much permanent harm to eyesight results from them, but it seems better to discuss these in connection with the eye.

Disturbances of the nervous system may find expression through either the mind or the body; whereas disturbances of other organs or systems must express themselves through the body exclusively. The most common disturbance of the nervous system in girls is *chorea*, or what is known in old-fashioned parlance as St. Vitus' Dance. It is a disorder characterized by irregular and involuntary muscular movements, the cause of which is not yet clearly understood. All that we do know with certainty is that there is no actual disease of the nervous system. It is not surprising that the condition is regarded with great dread, for its peculiarities are most alarming as well as most mortifying. There is really, however, no reason for apprehension. With the exception of a few rare cases of a peculiar nature, the disease runs its course and recovery takes place spontaneously. It usually makes its appearance in bright intelligent girls rather than stupid ones, and it is especially frequent in ambitious girls who are stimulated beyond their physical endurance at school. One physician of experience has even gone so far as to speak of it as "school-made." The first symptoms of it are usually nothing more than restlessness and inability to sit still in one position, sometimes accompanied by disturbed sleep and

causeless attacks of crying. The characteristic jerking movements begin a little later. Often they are first noticed at table and a girl is supposed to be awkward or careless because she drops articles that are handed to her. In severe cases all the muscles of the body are affected and movements of every kind become jerking and eccentric. A doctor ought always, of course, to be consulted in regard to chorea, for there are various means by which he can relieve and shorten it; but the disease, as I said before, is one that almost always gets well spontaneously.

Another nervous affection which sometimes makes its first appearance in youth, though not so often as in childhood, is stammering. It is caused by a want of co-ordination between the muscles of speech and the brain impulse which stimulates them to action. While not serious in itself, it ought to have extreme care, because if not cured immediately, it may easily become permanent.

That particular form of headache, accompanied by nausea and vomiting, which is commonly known as sick headache and technically as *migraine*, almost always makes its appearance in youth. It is occasionally, though rarely, seen in childhood, but hardly ever begins after twenty. The disorder is undoubtedly a nerve storm of some kind, though we do not know the explanation of it. It is often associated with some constitutional disease, especially gout, and it is quite a

different thing from the headache which accompanies an attack of acute indigestion with gastric symptoms. Genuine migraine is almost always inherited, either directly or collaterally. The pain is usually on but one side of the head and is accompanied by various disturbances of the nervous system, such as temporary loss of sight, giddiness, a sense of blinding light, and other symptoms, some of which are present in one case and some in another.

Neurasthenia, or nervous prostration, is not common in girlhood, though the foundations of it are often laid at that time by over-pressure either in education or in social life. The form peculiar to girlhood, when it does occur at that time, is characterized by excessive fatigue following exertion quite insufficient to account for it. Whenever nervous prostration does occur in a young girl it must be taken as a sign that her nervous system is not fully up to par and requires more care than under ordinary circumstances. Her life in future must be so arranged as to give her every facility for taking the necessary precautions. Excitement or exertion that in a normal girl might do no harm, are too great a risk in the case of one who has shown signs of neurasthenia, even though she has entirely recovered. A liberal allowance of sleep also is a necessity and it must not be curtailed for any reason whatever. The same thing is true in regard to other nervous ailments, as in the case of

girls who suffer from neuritis or from prolonged neuralgia.

A word must be said in regard to that worst of all nervous disorders, epilepsy, though fortunately it is not common. When it does exist, it most commonly makes its appearance between thirteen and eighteen. It differs from the other conditions we have discussed, because in it there are areas of actual disease in the brain, though it seems to be doubtful how far these are the result of the epilepsy or its cause. It is strongly hereditary, or rather the nervous imperfection that gives rise to it, is hereditary, but in the immediate ancestors the defect may have shown itself as insanity, intemperance, or some other abnormality of the nervous system. Whenever signs of it appear, of even the mildest description, the case should be put under the care of a specialist at once. How far the condition is susceptible of cure is not yet determined, but we do know that we have more reason to be hopeful in regard to recovery than we formerly had, and also that the condition can be kept from growing worse by timely treatment.

It is only necessary to have a clear understanding of the physical side of girlhood to realize that it is a period calling for incessant care and attention. Only now, however, has this understanding been reached; the necessities of girls at this age up to the present time, being too little regarded. Mothers, who

watch over every minute of a young child's existence with jealous care, often become indifferent when she reaches girlhood. It is not surprising that such marked bodily changes should sometimes be accompanied by disturbances of health; there is more reason for surprise that these disturbances are not more frequent and more serious. Many of them disappear spontaneously and others yield readily to medical treatment. But the advice of any intelligent sensible physician will take the shape largely of directions as to the healthful conduct of life rather than the prescription of medicines, and just as a typhoid patient owes his life mainly to the nurse upon whom the hourly care of his case depends, so does a young girl owe her healthy womanhood to nothing so much as the mother whose intelligent care and sympathy control her daily life during her passage from child to woman.

I give here, in conclusion, the account of a case in my own experience which illustrates what can be done by sanity and patience, even when the disturbance of health is more serious than is often the case. A girl who had had a normal healthy childhood, began, when she was about thirteen, to display great languor and disinclination to exertion whether in study or play. At first this was set down to indolence, but her mother shortly became convinced that some change incident to her age was the underlying cause, though nothing

was apparent beyond a certain degree of anemia. In the course of a few months she developed the symptoms characteristic of heart disturbance, namely, rapidity of action, palpitation, and shortness of breath, soon followed by an attack of chorea so severe that she could not walk and had to be carried each day into the open air. She was under the care of a good physician, but she lived at such a distance from him that he could see her only at long intervals, and her mother carried out his instructions, which were mainly directed to rest, sleep, fresh air and nourishment. Under this regimen the child improved slowly, until at the end of eighteen months from the first attack she was able to go back to school, after which the symptoms gradually disappeared altogether, and she is now a vigorous, healthy young woman, who spent four years in college without any strain upon her health whatever. Yet this was a case of unusual severity with a wider range of disturbance than is often seen.

CHAPTER II

MENTAL DISTURBANCES OF GIRLHOOD

Development of brain — Self consciousness — Egotism — Altruism — Self-confidence — Timidity — Interest in personal appearance — Love of society — Love of solitude — Reticence — Girlish friendships — Early love affairs — Attachments to older women — Hero-worship — Religious excitement — Spiritual awakening — Religious doubt — Conversion — Religious activity — Pledges — Morbid religious feeling — Nostalgia — Hysteria — Insanity.

THE brain increases very little in size after the eighth year, and the brain cells are almost as large and as numerous by that time as they ever will be. But the function of the brain, that is to say the capacity for thought, depends, not upon the size or number of the cells, but upon the number and arrangement of certain long fibers, called *nerve processes*, which extend from one cell to another and establish paths of connection by which ideas travel from one part of the brain to another. The extent and variety of these connections are what determine brain capacity, for upon them depends the number of ideas and their association with one another, as well as rapidity of thought. During childhood the number of nerve proc-

esses is small and the paths for ideas few and simple, but when the growth of the brain in respect to size is complete, they begin to develop in every direction. The growth of mental power, however, depends not only upon the development and association of nerve cells and nerve processes but upon their education by which new regions of thought are opened and paths of least resistance cultivated and it is during youth that such training is most easily and effectually carried on. This is the time when education does its best work by strengthening structures already formed and by rousing dormant elements to future growth and organization. If the nerve elements of the brain are by nature deficient, cultivation cannot do much for them but, on the other hand, no matter how rich in possibilities they may be, much latent ability will be lost in the absence of the training and stimulation bestowed by formal education.

The process of cell development begins at about the same time as the period of physical growth. Up to that time the higher mental processes, such as intellect, imagination, and originality of thought exist only in a latent state, but with the establishment of brain connections in every direction they come rapidly into activity. The development of the different mental faculties, however, is extremely unequal, emotion and imagination advancing more quickly than intellect and

reason, so that during the early years of mental growth there is great mental instability and excess of the emotions. Emotional life is, indeed, the most prominent feature of early girlhood, a fact which must never be forgotten in studying the mental peculiarities of the period, for, in most cases, it contains their explanation. These mental disturbances begin at about the same time as the physical ones, described in the previous chapter, but they continue longer, and, speaking generally, it may be said that while the bodily changes occupy the years between twelve and sixteen, the mental ones cover the period between twelve and twenty-one, being most intense from fifteen to eighteen.

The most characteristic feature in the mental development of girlhood is *self-consciousness*, or, to put it more exactly, the *consciousness of self*; which is the basis of all the mental changes of the period. During childhood there is little or no consciousness of the individual. The little girl is cared for by others, her judgments and opinions are taken from others, and she not only acquiesces in this state of things, but has no conception of any other. The most characteristic feature of childhood is imitation. But with the dawn of mental development and the birth of new ideas, begins the growth of individual life and the capacity to reason, judge, and analyze. Life has hitherto been limited by the girl's own surroundings,

which she has accepted without question; now she begins to ask herself the meaning of things around her, and then, going a step farther, she looks out into the world and ponders over her own relation to it, realizing that a place in it is her birthright and speculating upon its possibilities. While, all the time, underneath this mental awakening lies the mysterious influence of sex just coming into existence, unrecognized by her but nevertheless entering into all her thoughts and emotions. It is not strange, surely, that this phase of her life should be one of storm and stress during which she is subject to excess of emotion.

The fundamental self-consciousness of the period expresses itself in a variety of ways, sometimes in apparent contradiction to each other. Egotism is present, whichever way we turn, for nothing in the world is so interesting to a girl at this time in life as herself; yet this is the moment when the altruistic instinct, in other words the feeling for others, first makes itself felt. It seems as though the perception of an individual place in the world belonging to herself brought with it the perception of the place occupied by others, so that the selfish and the altruistic instinct exist side by side in a manner which is never possible again, for by the time maturity is reached one or the other will have gained ascendancy and will maintain the dominant note throughout the future life. Another seeming contradiction is the presence of self-confidence and

self-distrust in the same person, one mood succeeding the other with instant transition. But this is only the natural outcome of lack of self-knowledge. A girl at this age does not know herself and self-confidence without self-understanding is easily upset.

The effect of the self-consciousness on manner is largely a question of temperament. Girls who are naturally timid are awkward, shy and sensitive to such a degree that they sometimes seem paralyzed in the presence of strangers, while others, by nature self-possessed, are confident even to the point of boldness. But shyness does not always show itself in difficulty of speech. On the contrary, extreme shyness may be at the bottom of loud, rapid talking on all-chosen subjects, while at other times, speech, although fluent, is so forced and nervous as to be almost incoherent. Both the talkative and the tongue-tied forms of shyness proceed from the same thing, namely, the perception in the girl's mind that she does not know exactly what she ought to say or do, and therefore she either abandons the attempt and takes refuge in silence or makes an agonized effort resulting in incoherent chatter.

Boldness, or in its extreme form, impudence, is an indication of confidence in the ability to do and say the right thing and a determination to let the capacity be seen. It is not so common as shyness, and when it is present, there has generally been some defect in

early training. Not that defective training necessarily results in boldness of manner, but when extreme self-assurance is a natural trait, an error in early education will bring it to flagrant proportions in early youth.

Intense interest in personal appearance is a very common manifestation of self-consciousness, and often develops suddenly when there has been no sign of it before. Up to this time clothes have been taken as a matter of course, very much as if they were fur or feathers; now they become one of the vital interests in life. Trifling questions of fashion, color or fit, are a real source of unhappiness; the exaggerated importance attached to them gives the impression that nothing else in the world can be of any consequence whatever, and that the girls expect to stand or fall in life by their clothes. The form of fastidiousness takes different directions according to temperament. Some girls wish to have their dress and appointments as striking as possible, in order to attract attention; others manifest an almost morbid desire that everything about them shall be so exactly what it should be that it will attract no notice whatever, whether approval or censure. This difference is really, at bottom, one of character, arising from a natural confidence or a natural timidity.

Increased attention to personal neatness is another feature of this particular phase. Often it is in

marked contrast to the previous condition of affairs. Many girls up to thirteen or fourteen, are as careless and indifferent to their toilet as their brothers, and will not give due attention to its details without supervision. Very few girls, indeed, can be trusted with the care of their own toilet before they are fifteen. Then, of a sudden, there is a transformation, personal nicety and adornment becoming matters of absorbing interest and importance. Dainty and fanciful toilet appointments, such as ivory or silver-backed brushes or elaborate manicure sets, become objects of pride or envy, and the beautifying of bedrooms occupies much time and attention. All these new interests, whether of dress, of person, or of appointments, are signs of the new consciousness of independent personality, and also of the perception that its attraction to the other sex is beginning to be appreciated. Miss Austen has touched upon this phase of girlhood with delightful humor in the description of her heroine, Catherine Morland:

“At ten years old . . . she was noisy and wild, hated confinement and cleanliness, and loved nothing in the world so well as rolling down the green slope at the back of the house. At fifteen appearances were mending; she began to curl her hair and long for balls; her complexion improved, her features softened, her eyes gained more animation, and her figure more consequence. Her love of dirt gave way

to an inclination for finery, and she grew clean as she grew smart."

The social sense almost always undergoes some change. Some girls have a craving for society; others for solitude. The little girl who dreaded the companionship of other children and could not bear to go away from home will suddenly develop an inordinate taste for social intercourse. She will go anywhere and everywhere she is invited, and makes plans for incessant company at home. This development of the social sense and of the gregarious instinct shows itself in the fancy for societies and clubs, so common among school girls, while in boys it appears in a disposition to "go in gangs."

At the other extreme of this phase is the taste for solitude. A girl who was formerly content and happy in the society of other children, now seizes every opportunity to read or walk alone, or slip away by herself and sit lost in her own thoughts. The satisfaction in being alone, however, does not always proceed from aversion to companionship in itself. The medley of new thoughts, impressions and emotions crowded into a girl's mind at this time sometimes becomes so oppressive that she longs for isolation until she has established some sort of relation between herself and her new mental processes. It is rather the custom to ascribe this kind of conduct to secretiveness, which I cannot help thinking shows a misunderstanding.

ing of its nature. Secretiveness implies a deliberate intention to conceal, but the reticence of this period is usually entirely without conscious intention. The girl does not scheme to conceal what is passing in her mind, but her thoughts at this time are as full of mystery to herself as to others, and if she does not speak of them openly it is because she does not understand herself and has no means of expression at her command.

It is at this point in development that parents often make a grave mistake. Not infrequently a mother, to whom all her daughter's plans, hopes, and aspirations have always been known, suddenly finds herself shut out, not by intention on the girl's part, but by force of changes within, which she lacks power to express. It is not surprising that a mother should experience a moment's hurt feeling when she first realizes that the child whose every thought has hitherto been known to her is now more or less a mystery, but good sense ought to convince her that the new order of things is only what is natural and right. This is the time when a girl, to use a colloquial phrase, is doing her own thinking, and it is for her own good that she should do it spontaneously, without being forced to attempt an analysis of her mental processes for the information of another, no matter how near and dear the other may be. At this stage of mental growth the power of insight is far in advance of the power

of expression. A girl feels and perceives much more than she can put into words or even into connected thought. By-and-by when the reasoning powers are more developed and the mental processes are in equilibrium, all her half-formulated ideas, aspirations, and wonderings will take form and find expression; but until this time comes it is a great mistake to intrude upon her reserve. Properly treated, the period is only a temporary one. If a girl finds that her confidence is not forced and is sensible of that silent comprehension and sympathy which demands no recognition, she will give her confidence again fully and freely as she did before; but interference with the process of self-evolution just at this period will certainly impair confidence for the future.

Turning to emotional changes of a deeper character, we find that those of affection are most common. With little children the family circle represents the entire world and the affections developed within it are founded upon dependence and trust, but with the advent of youth, other types of affection make their appearance, all of which contain more or less of the altruistic instinct, combined in each instance with some other sentiment or sentiments. The simplest of the various forms of youthful affection is that of friendship between two girls of about the same age, attachments which are often of great intensity for the moment.

Sometimes parents are disposed to disapprove of such friendships on the ground that they are too engrossing and that other claims or duties are neglected. No doubt this danger does exist. Youth, as someone has said, is the age of folly, and occasionally a girl will carry such an attachment to absurd lengths, neglecting her acquaintance, her studies, even her family, for this one intimacy, going out only in the beloved one's company, entering into no pleasures or interests which cannot be shared with her, and dressing either exactly like her, or in accordance with her taste. This kind of thing, if kept up for any length of time, is, of course, detrimental to a rounded development, but as a matter of fact the passion burns itself out, like other intense emotions, in a few months, and either becomes an extinct volcano or else settles down into a common-place, every-day regard. If it is kept within moderate bounds while it lasts it is not a bad thing, provided it satisfies two requirements, namely, that both parties shall be innocent-minded, conscientious girls and that duties or ties which have a moral claim shall not be neglected for it. Under undue repression the emotional disturbance at the bottom of it will certainly find some other means of expression and a girlish friendship is certainly more desirable than a premature love affair.

Not that early love affairs between boy and girl, under natural and blameless conditions, are by any

means so objectionable as they are sometimes thought to be. They have been looked upon askance because, until recently, the opinion of the French psychologist, Ribot, that sex instinct is the only influence concerned in them has been accepted without question. But later psychologists incline to the belief that sex instinct is only one of several factors involved, and not by any means the most powerful. The altruistic instinct is certainly an element in all the other affections that develop during youth, and there seems every reason to believe it is so here. In fact, the opinion now coming to be accepted in regard to early love affairs is that they are composed of the same elements as friendships between girls, namely the altruistic and gregarious instincts, with the addition of sex instinct in small proportion. External influence, such as imitation and suggestion, has a part in their causation, the latter being sometimes a most harmful agent. But quite as powerful as either of these and in many instances much more so, is the effect produced by reading romantic love stories, in which the element of passion is given undue prominence, such for example as the serial tales in the cheap weekly papers.

But although these early attachments are far more childlike and platonic in their nature than has been supposed, there is no doubt they are undesirable for young girls, even though the harm done by them is mainly indirect. Such an attachment may and some-

times does have a certain good effect by stimulating a girl to pay attention to her manners and deportment, but these advantages are outbalanced by their evils, such as neglect of study, possible jealousy and deceit, and above all, by the unwholesome excitement which in the common phrase, turns a girl's head. Yet it is by no means judicious to treat such affairs with summary repression, for it is only too likely to induce deceit. In fact, repression is never a wise means of treatment for emotional excesses. The excitement of girlhood must find some means of expression, and if the chosen outlet is thwarted, it will either continue its course by underhand means, or if the girl, from conscientious motives lends herself to repression, her health of body or mind will almost surely suffer. The period, as I said before, is one of storm and stress, and the girl who passes through the years between twelve and twenty without emotional disturbance of some kind is exceptional.

Probably the best means of dealing with youthful attachments is to give them as much judicious neglect as is consistent with keeping them under quiet observation. Separation has a most excellent effect, because the growth of the mental powers at this age is so rapid that even a brief interval of time will create changes so marked as to make both parties feel quite differently when they meet again. Early love affairs, however, are one of the things in which an ounce of

prevention is worth a pound of cure. There can be no doubt, as I have said before, that they are fostered by unsuitable suggestions during the later years of childhood, which do an immense amount of harm that is not sufficiently appreciated, for even when it has no immediate bad effect, it prepares the way for later influences of a harmful nature. Many people who think twice before suggesting a love affair to a young girl, think it is pretty to do so in her babyhood, and amusing to watch the effect of allusions to little sweethearts of six and seven years old. But the childish mind which is accustomed to such allusions has had its soil well prepared for the same influences in later years, and enters into a girlish attachment far more lightly and easily than would be the case if childhood had been free from suggestion.

The results of investigation into early love affairs are as yet too small to warrant positive conclusions, but as far as they go, it seems that their tendency is toward a natural death, and therefore there are rarely any permanent bad results, though there is always reason for watchfulness and caution, especially at the close of an attachment, for the excitement occasioned by it often results in a craving for renewal. Out of one hundred cases investigated in one High School, only two ended in marriage and one of these applied for a divorce, a result which our knowledge of the mental conditions belonging to the age would lead us

to expect, since the fact that the emotions are so much more developed than the reason makes it highly unlikely that any choice made at this age could be based on any real appreciation of character, or stand the test of time.

Another type of affection, confined usually to the years between twelve and seventeen, is the passionate and romantic friendship between a young girl and a woman some years older than herself. These attachments are often contemptuously treated by parents and guardians, on the ground that they are unnatural and therefore likely to be harmful to the younger party, an unfortunate idea, for they are often most exquisite in their nature and beneficial in their effects. The nature of their influence depends upon the character of the older woman. If it is a fine one, her influence, which for the time being is unbounded, will be one of the best things life can bestow. The self-consciousness of the age and the growth of the individual life often make a girl impatient of home influences, even when her affection for them is unchanged. In the new phase of existence upon which she is now entering, all her own ideas and impressions are new to her and even her own personality, now realized for the first time, strikes her with surprise. It is not strange that a gulf seems fixed between her and the formulas which governed her childhood, nor that in this period of transition, when everything on

her mental horizon is changing around her like a kaleidoscope, she should feel that her necessities are better understood by an outsider, who from her point of view, is not hampered by preconceived opinions. For one peculiarity of the emotional period is that every girl believes her experience to be unique while it lasts. Careful study of many cases shows that they are all alike as far as the main characteristics are concerned, but it is only in later life that this fact can be perceived by the chief figure. It is quite natural, therefore, that a girl should believe herself best understood by a stranger, and wise parents will accept the situation as one of the necessities of growth.

Everything depends, however, upon the character of the older party in the friendship. If she does not grasp the situation and use her influence with tact and discretion, the younger may lose her self-reliance and individuality, even though the influence is otherwise good and sincere. And if the older woman is really undeserving of confidence, much graver injury to character will result. The influence of a really bad woman upon a young and plastic mind, at a time when impressions are most easily received, may ruin a whole life; and even when the defects are confined to weakness, selfishness, or vulgarity, a great deal of harm is possible. A girl may regain her freedom of judgment and, after a time, see clearly how mistaken she

was in her youthful confidence and affection, but even if her principles escape unharmed, a certain amount of injury to taste is almost unavoidable. If parents have reason to think the influence undesirable, but not actually objectionable, the friendship had better be dissolved as gently and indirectly as possible. For it must be remembered that the girl's affection is sincere and intense, and that, for the moment, she is not capable of understanding the objections, though she will do so eventually. Hence direct and determined opposition will not only cause her great suffering, but for the time being, impair her confidence in her parents. Yet if the parents are assured that the older woman is really one who has lost general respect, the friendship had better be broken without loss of time, at any cost of trouble or heart-burning.

Closely akin to this type of affection is that known as hero-worship, which is really devotion to the ideal. One of the writers on adolescent affection says with great clearness of observation, that "in certain phases of adolescent emotion, affection seems to exist in a diffused state and attach itself to some real or imaginary individual, whom the alembics of youthful fancy transforms into the highest ideal." It is the peculiarity of this form of affection that an imaginary object answers the purpose as well as a real one; indeed, it seems with girls, at any rate, as if an imaginary one were preferred. All that is needed is

some heroic action or some inspiring quality of heart or head to serve as a focus for the diffused emotion. An inquiry into the nature of the ideals in a number of these cases has shown them to be rarely unworthy; indeed, it throws a pleasant light upon youthful human nature, to find that the objects of hero-worship are almost always noble and refined. This being the case, the only harm that can possibly arise from an attack of it, is absorption to such a degree that legitimate claims and duties are neglected, while, on the other side the stimulus given to character in process of formation by devotion to a high ideal, real or imaginary, is a great gain.

Next to affection, the commonest form of emotional disturbance in youth, and also the most powerful, is religious excitement. Inquiry into this phase shows that toward the end of actual childhood, that is to say, between eight and twelve, there is a period when the mind becomes conscious that henceforward the conduct of life must be ruled from within and not from without, and with this perception comes a certain amount of mental disturbance which may be either religious or moral. This phase lasts but a short time and is over by the time the period of rapid physical growth begins. It belongs, therefore, entirely to childhood and would hardly call for mention here, were it not the prelude to more developed excitement a few years later.

The latter disturbance usually appears in girls between thirteen and sixteen, the most common age being about fifteen. The latent spiritual feeling which it represents has been developing for a long time unknown to the subject of it, until it is suddenly roused into activity by some external influence, such as a sermon, a conversation with a friend or a stranger, or, in some cases, a passage in a book. Whatever form it may assume, it is the spark falling upon a train prepared for it, for the spiritual influence which has been stirring within needs only the right stimulus to become overwhelming, a fact which explains why an impulse that often seems quite inadequate, can arouse feelings of such intensity. In other instances the awakening takes place quietly and spontaneously without any excitement whatever, and the subject is unable to say why the consciousness of religious emotion should suddenly appear, though the fact that it has done so is plain, and the circumstances attending it make such an impression that they are never forgotten.

Whatever the outward form of expression may be, there is hardly any girl who passes through the transition between childhood and womanhood without an awakening to religious life of some description. The reason for this is probably that all children are naturally religious and most of them are religiously taught; the idea of religion, therefore, is firmly im-

planted in their minds and accepted as a matter of course. But with the growth of emotion and of independent thought, it suddenly presents itself as a principle which must be thought out in company with other new perceptions and ideas. It has been rather the custom to associate the religious sensibility of youth with the excitement attending the establishment of the function of sex; but those who have studied the subject most recently incline to the belief that, with girls at any rate, the connection between the two states is nothing more than must exist between any two emotional conditions at a period when there is great mental instability.

The spiritual awakening having once taken place, it is followed by a period of disturbance which may assume one of several forms. One of these, which some persons consider the most frequent, is that of religious doubt, the objects of skepticism being usually dogmas or creeds, as for example, the inspiration of the Bible, the existence of God, the divinity of Christ, the doctrines of immortality and atonement. Sometimes the disbelief begins with some one of God's attributes, as His mercy, justice or love, and then having started with one in particular, advances gradually from one attribute to another until it is complete.

Some persons have assumed that the fact of doubt appearing so frequently with the first stages of independent thought is evidence that the doubting attri-

bute in religion is a natural one, but this is a great mistake. It is an even greater error to consider such doubts a manifestation of atheism and treat the subject of them as a willful unbeliever. The explanation of the phase is to be found, as in most disturbances of the period, in the birth of self-consciousness and the growth of independent thought, which arouse a craving for absolute truth, the girl not realizing that much of what she would like to know can only be understood through the experience of life, or, it may be, can never be known at all. The capacity to accept uncertainty on important abstract questions comes only with maturity; youth is confident of its own ability to understand all mysteries and all knowledge, and cannot believe that an answer to earnest inquiry is ever impossible.

As soon as the mind awakens to religious inquiry, the beliefs hitherto accepted without question, suddenly present themselves for fresh and independent judgment. They are tried in the balance of individual opinion, but before any decision can be reached, there is almost always a period of suspense and ferment. As the years go on and the intellect develops sufficiently to balance the emotions, judgment is formed, and in the majority of cases the girl returns to her former articles of belief, generally in a reconstructed form. There are always a few cases, however, which decide for positive unbelief in one form or

another, but the unbelief often disappears in its turn, with the experience of years.

When the excitement following spiritual awakening is not accompanied by doubt, it usually takes the form of a sense of imperfection, accompanied by restlessness, anxiety, depression, and doubt of God's forgiveness or the genuine character of its own repentance. This is the condition known as the "conviction of sin" in which the consciousness of imperfection is always the central feature, while the feelings accompanying it vary according to individual temperament and education.

The state of religious distress continues for a longer or shorter period and then yields to a sense of forgiveness and peace, brought about by both conscious and unconscious causes. This is the state of mind known as *conversion*. It is sometimes accompanied by great excitement, which under special conditions and mismanagement may become hysterical; in other instances the chief feature of it is a yielding up of the will followed by joy and peace. The cases in which the spiritual awakening is spontaneous and peaceful, without any period of ferment or distress, do not experience any process of active conversion.

Whatever form the spiritual disturbance assumes, it is almost always followed by great religious activity of one kind or another. Some girls are possessed with a consuming desire for attendance upon religious

services, or for hearing sermons by emotional preachers; others are consumed with a burning zeal for doing good to others or testifying to their belief in and out of season, while still another class spends hours in private devotion, sometimes to the neglect of other duties. Whatever form the activity may take, it is hardly ever in moderation.

It is often a nice question for parents who are watching a daughter pass through this period of religious ferment, how far the emotion of the moment ought to be encouraged to express itself formally in the shape of an open profession or a pledge. The wish for such action is the natural outcome of intense excitement seeking definite expression and most girls are ardently desirous of some such step, whether it take the form of the rite of confirmation, of adult baptism, or a formal "joining the church." The objection to such a step lies, of course, in the possibility that when the excitement of the transition from girl to woman is over and the calmness of maturity is reached, it may be the subject of regret, since it holds her committed to opinions which may not then be approved by her judgment. On the other hand it may be argued that it is wise to secure a definite committal at this time, just because it may be impossible later on. The question must, of course, be decided for itself in every case; but one thing is quite certain, namely, that those in authority are never justified in taking ad-

vantage of the excitable and unstable condition of the mind at this period to exert pressure toward a pledge of any kind, nor in stimulating religious feeling beyond its spontaneous limit. In the first place the susceptible condition of the nervous system at this time may make forced pressure actually dangerous, and the result may be hysteria or neurasthenia. This is the dangerous side of revivals. But equally injurious and much more common, is the forcing an artificial state of mind, in which the girl imagines that she feels more than is really the case. Then, when her reason develops and she realizes where she actually stands, she will be antagonized toward religious belief altogether. Many a young mind has been warped by this kind of treatment.

It sometimes happens that religious disturbance, whether it is doubt, depression, or anxiety, passes beyond any reasonable boundaries. In such a case a girl cannot sleep, she loses her appetite, and lives under a dark cloud of gloom and self-reproach. The belief in having committed the unpardonable sin, which in old times caused such fearful misery, was one manifestation of this condition, that fortunately is now rarely seen. Such cases are almost always due to physical weakness; indeed it is hardly too much to say that they are always so, whether the failure is one of general health or some special disturbance of the nervous system.

A perfect description of such a case is that of John Bunyan's religious experiences, as given by himself in "Grace Abounding"; the interpretation of his feelings on a physical basis having been supplied, in recent years, by a well-known psychologist.¹

Religious consolation and advice in such a case is worse than useless unless it is accompanied by physical care, but it is not always well to exclude discussion on religious subjects altogether, for the patient then begins to think that those around her are out of sympathy with her condition and state of mind, and nothing is so important as that her confidence should be preserved. Usually these cases are perfectly unmistakable, but if there is any uncertainty whether the doubt or depression passes over the normal line, the point can be settled by observing the effect of an assurance that no anxiety or care need be felt, given by someone in whom full confidence is reposed. If the mind is normal, there will be relief, at any rate for a time, but if the condition is a morbid one, the assurance will have no effect.

One abnormal condition practically confined to girlhood, is the extreme form of homesickness, professionally known as *nostalgia*. The ordinary type of homesickness, which hardly any of us has escaped, is not important enough to come under this head. But occasionally,—usually when there is a defective nerv-

¹ "The Case of John Bunyan," by Josiah Royce.

ous system,— separation from home and accustomed surroundings is followed by a distress so acute and so profound that the victim cannot eat nor sleep, and unless it is relieved, the health fails altogether. One striking peculiarity of the condition, which is wanting in the common form of homesickness, is that the craving seems to be for the home itself and for the accustomed environment, not for the persons belonging to it, and the companionship of relatives at a distance, or even the establishment of the conditions of home, gives no relief.

An interesting case of nostalgia in its typical form is that of the two sisters, Charlotte and Emily Brontë, who in early girlhood left their lonely home in the moorlands to study in Brussels. Charlotte, by a great effort of will, managed to remain away for the appointed time, though she was never well or even moderately happy; but Emily, whose temperament was extremely morbid, was so seriously ill that it was necessary to send her home again.

Genuine cases of nostalgia are rare, but they do sometimes occur, especially in boarding schools. Generally if a girl can be carried through a few weeks by means of her own will and the sympathy of those in charge of her, she will recover; but if the condition persists and her general health begins to fail, there is nothing for it but to send her home.

Hysteria is a nervous condition not peculiar to

youth, but much more frequent then than at any other time. Exactly what the nature of it is we do not know. So far as appearances are concerned it is characterized by involuntary imitation of the symptoms of some kind of disease, and this imitation, which would be impossible to any voluntary effort, even that of the cleverest mimic, is carried on perfectly through the subconscious mind. The term "hysteria" is sometimes applied to cases of deliberate imposture, and also (from carelessness) to almost any condition which is not at once understood and seems to the bystanders unreasonable. But every year shows more plainly that the various manifestations of hysteria are due to some actual disease, though we do not as yet know what that disease is.

The typical severe forms of hysteria, with convulsive seizures, epileptic symptoms, and other violent manifestations, are extremely rare in this country. Among French women, whose nervous temperament is very unstable, they are not uncommon. The milder forms, such as we see here, usually appear as uncontrollable fits of crying or laughing, or both together, a choking sensation in the throat, and great lack of self-control. In more severe cases there is imitation of symptoms which have been read of, or overheard in the conversation of others. It is strongly hereditary, about seventy per cent of cases being inherited, though, like other nervous affections, the nervous defect may

have shown itself under another form in the previous generation.

Perhaps the most important thing to be remembered in everyday life about hysteria is that we are not justified in using the word in the same sense as *imaginary*, and dismissing an ailment as hysterical because we do not understand it and therefore do not more than half believe in it. Even if it is characterized by imitation of symptoms belonging to diseases which are known not to be present, the underlying hysterical condition is none the less present and real. The careless and unwarranted use of the word "hysterical" is responsible for a great deal of cruelty.

The most serious of all mental disturbances, of course, is insanity. In the very early years of girlhood, it is rare, but a little later, that is to say, from eighteen to twenty-one, it is not uncommon, a fact which is not surprising when we remember the excitability of the brain at this period. The element of inheritance enters into it strongly, in fact, insanity of youth is the most hereditary of all insanities, probably because youth is the time when all inherited qualities are especially liable to appear. Still another influence which favors the appearance of insanity in youth is the excitement attending the establishment of the sexual function.

Insanity in girlhood may take either of the two great forms which characterize it in later life, namely,

mania or melancholia. In both cases there are delusions of persecution, the imaginary persecutor being usually a friend or a relative. Sometimes the patient thinks she will be robbed or put into prison unjustly, or have her home burned. In other cases there is simple depression, without any definite idea. Illusions, that is to say, false impressions connected with the senses, such as imaginary odors, visions or sounds, are not so common as in older insanity.

In other cases no definite idea exists and there is simple melancholia without assignable reason, or else bursts of excitement with hysterical symptoms. Sometimes a patient who has apparently been unconscious of all that was passing around her, will show afterwards that she was aware of every word, and that her condition must have been largely feigned.

It would not be profitable to discuss the various manifestations of youthful insanity at length, but there are a few peculiarities of it which it may be desirable to mention. The idea of suicide is often present, but it rarely takes active expression as it does in later life. In fact, it seems as if the impulse to self-destruction in youthful insanity is usually hysterical, being intended to deceive the bystanders and excite their sympathies. It is not, as in older persons, a real desire to take life. There is more or less disturbance of menstruation, usually of the nature of suppression, and the mental condition is always worse at the time

of the periods, or shortly before they appear. Friends and relatives are apt to think that the mental condition is the result of the suppression, but the truth is that both are manifestations of some general disturbance belonging to the period of life. The prospect of recovery from youthful insanity is good, much better than in later life; in fact it is more hopeful than in any other form of mental derangement. Eighty per cent of recoveries are given by one authority. There may be several relapses, however, before recovery finally sets in.

The treatment of all such cases belongs, of course, to the physician, and any case showing symptoms of insanity ought to be placed in his hands without delay. The matter of prevention, however, lies largely in the hands of relatives, and a good deal can be done in this line. Whenever an insane inheritance is known or suspected, a special watch must be kept over a girl during girlhood and the few years preceding it. Mental excitement and over-pressure in study must be avoided with the utmost care, but on the other hand constant occupation of a congenial kind is a necessity, for nothing is so likely to favor a latent tendency to mental derangement as introspection and self-analysis, which always arises when the thoughts have nothing to keep them occupied. Disturbances of menstruation in girls with such an inheritance should receive more attention than would be necessary in girls

without it, and any symptoms of hysteria or undue excitement, either with the periods or at other times, must receive prompt attention. Above all there must be abundance of sleep and nothing should be allowed to interfere with the night's rest. Insomnia, if it should appear, must never be neglected. In all actions and events of life it must be remembered that cases where an insane inheritance exists cannot take liberties with health, and that slight risks in the way of excitement, pressure or fatigue, which a normal girl, for sufficient reason, might assume, ought never to be allowed in a case where there is reason to fear insanity.

CHAPTER III

MORAL DISTURBANCES OF GIRLHOOD

Association of mental and moral disturbance—Sense of personal freedom—Exaggerated conscience—Abolition of moral sense—Bad temper—Untruthfulness—Dishonesty—Kleptomania—Debt—Use of bad language—Failure of will power—Review of principal points in disturbances of girlhood.

THERE is no real difference between the mental and moral disturbances of girlhood, or rather, to speak more exactly, moral disturbances are actually mental changes which find expression through the moral nature. For the sake of convenience, however, it seems best to consider them separately. The development of self-consciousness, which underlies the mental changes of girlhood, finds expression morally in a desire for personal freedom, before unknown. To a child right conduct is represented by obedience. A normal, healthy little girl does not trouble herself as to abstract questions of right or wrong and feels no moral responsibility beyond the fulfillment of duties laid down for her by her parents. But when she reaches the age when the brain cells begin to establish connections in every direction, the process of thinking

for herself, which leads, on the emotional side, to religious excitement, shows itself on the side of the reason by activity of the moral sense and sometimes by eccentricity of conduct.

I do not propose to discuss the graver moral delinquencies which come under the head of law-breaking, for their presence shows that the offender is suffering from the pernicious effects of defective training and poor environment, or else that she has inherited criminal tendencies; and in either case she belongs to the specialist in child reformation. What we need to consider here are the peculiarities that appear in almost all girls at some point between twelve and twenty-one, and then disappear with the establishment of maturity and the subsidence of emotional disturbance.

These peculiarities of conduct may be for better or for worse, that is to say, they may take the form of a morbid exaggeration of what is right or of a departure from it. In a girl who has inherited good moral instincts and received a careful training based upon principle, the new sense of personal freedom and individual responsibility sometimes shows itself in a morbid conscientiousness, assuming one form or another according to temperament and circumstance.

An exaggerated altruism, or love of others, is a frequent manifestation. Under its influence a girl will imagine herself called upon to make some fanatical

self-sacrifice. Sometimes the impulse takes the form of renunciation and under the stimulus of this morbid craving for self-immolation, she will give up every claim that she considers worldly or accept the most unwholesome and unattractive duties and surroundings, which ten years later, when her moral equilibrium is reached, she would make every effort to change for the better; or, if that should be impossible, to escape from altogether. This impulse towards self-sacrifice is one element in the condition of self-surrender which combined with religious excitement creates the condition known as conversion.

Sometimes the perverted moral sense takes the form of thinking all pleasure wrong, because it distracts the mind from serious things, or even simply because it is pleasant. In other instances there is a craving for exertion, which prompts the subject of it to undertake many new and sometimes unnecessary duties, such as teaching in Sunday School, helping in boys' clubs, or mothers' meetings, or sewing circles. But however proper the undertaking may be in itself, the conscience is never satisfied that all possible exertion has been made or that the results are all that they should be.

Another form of expression is that in which a girl cannot be satisfied if she has done wrong without confessing the fault to someone, sometimes because confession is good for the soul, and in other cases be-

cause she cannot be satisfied without the assurance of pardon. Not infrequently when she does confess the fault she exaggerates its importance to an extent that is absurd, like the little Sister of Charity in Miss Woolson's tale who accused herself of murderous rage because she chastised the cat with a palm branch when it had broken her flower pot. Another variety of exaggerated conscience is that which invents an imaginary ethical situation and then argues as to the question of right and wrong involved in it. Still another phase is literal verbal accuracy, in which a girl is miserable because she has said she heard carriage wheels, when they may have been the wheels of a cart, or that she thought a thing was so, when she had better have said she believed it.

It is very important not to stimulate this morbid condition. There is no danger that a conscience of this description will become lax; the great thing to be feared is that it will be finical, and every effort must be made to induce the victim to take a sane view of things. Physical causes are often concerned in this moral unhappiness, just as they are in religious depression, and for both the cure lies in a healthy life with abundance of sleep.

At the other extreme from this exaggeration of the moral sense are the cases where the moral sense for the time being is diminished or even lost. The most frequent form of moral weakness in adolescence is bad



temper, whether it takes the form of violent anger, of sulkiness, of revengefulness, or of general irritability. Here again physical causes play a considerable part, for often the nervous system just at this age is so excitable and over-charged that the most trivial things, such as a teasing glance, or a well-meant but ill-judged word will cause an explosion. It is wrong to judge a girl too severely for conduct of this kind, since she is not responsible for the emotional condition peculiar to her age; but it is very necessary to make her realize the dangers of yielding to it, for the habit of bad temper is one easily formed and hard to break. It is a good plan to watch a case in which irritability of any kind seems to be developing, so as to find out how far it is affected by physical fatigue. If it is worse in the afternoon, when the fatigue of the day is beginning to be felt, if it is increased by exertion or excitement, and especially if it is increased at the monthly periods, it may be safely set down to bodily weakness. The treatment must lie in adjusting physical conditions, in removing or forestalling causes of offense, and, above all, in enlisting the girl's efforts in her own service and teaching her to control herself. Explain to her how great will be the injury to her future if the habit of bad temper is formed, and show her how easy it is, comparatively, to control herself, if she makes the effort in the very beginning before she has begun to yield to the angry influence.

Untruthfulness is another common fault of youth, sometimes appearing in a girl who has hitherto been truth itself. It assumes various forms, not all of which can be characterized as deceit, though they are certainly departures from truth. The commonest, as well as the most interesting of the latter, is that in which the imagination overpowers the sense of reality. It is the same mental condition as that in which young children declare they have met with lions and tigers, or set fire to houses, or, perhaps, in cases where the mind is naturally commonplace, describe imaginary incidents in which the circumstances are of everyday nature but have had no existence. The only difference in the delusions of later years is that the imagination is more developed and the consciousness of self more intense.

These imaginative states are generally excited by some character in romance or history, around which the imagination plays, and they often contain a strong element of hero-worship. A girl will imagine herself to be some individual of whom she has heard or read, as, for instance, Mary, Queen of Scots; Elaine; Peggy Stewart; or it may be, a Red Cross Nurse. The illusion, whatever it may be, will pervade all her thoughts and actions while it lasts, and she will endure considerable discomfort or make great exertion in order to sustain it with dignity. Fiametta, in Mrs. Harker's charming story, "A Romance of the Nursery"; when

she impersonated Ellen in "Home Influence,"—"walking with drooping head and downcast eyes, the antimacassar draped gracefully about her cheeks to represent her flowing ringlets" is an excellent example.

The most remarkable thing about these affairs is the relation of the girl herself to her delusion. She knows perfectly well, of course, that the idea in possession of her is the work of her own imagination, but this knowledge remains in a subconscious state until it is called into active existence by a deliberate effort or a sudden shock. In the absence of any external stimulus, she lends herself to the delusion and is for the time being the creature of her own imagination.

It is unwise to treat these affairs too seriously, for there is no deceit in them in the real sense of the word. The girl does not "practice to deceive," and therefore to tell her that she is lending herself to a lie and is to blame in the same sense, if not in the same degree, as if she were guilty of a deliberate imposture is doing her a great injustice and may end by seriously confusing her ideas of right and wrong. Nor is it right, so it seems to me, to treat these innocent fancies with contempt or derision. The advice, sometimes given, to laugh at them cannot be judicious, for it will certainly cause pain and may result in their being carried on secretly, which is peculiarly unfortunate for

it is evidence that the girl's trust in her authorities has been shaken.

The whole thing ought to be regarded as a perfectly natural phase in girlish development. At this time in life, the mind is opening every day to new sources of knowledge and the girl is continually making acquaintance with interesting personalities in history and romance, or, it may be, in the accounts of actual events. At the same time the self-consciousness belonging to the period is constantly on the alert to seize occasions for its gratification. Is it surprising that, under these conditions, the imagination, always excitable at this age, even in girls who are naturally commonplace, should seize upon some romantic or heroic character now heard of for the first time, and invest herself with its personality and atmosphere? It may sometimes be necessary to take measures to keep an impulsive girl from making herself ridiculous before strangers who do not understand her but otherwise it is surely best to let the situation entirely alone. The girl who passes through the early years of youth without any experience of the kind is really less normal in her development than the girl for whom it exists and what is more she is less fortunate. The phase while it lasts will give her many happy hours, and when it has passed away, which it does spontaneously, it will leave her in possession of delightful memories.

Another variety of untruthfulness, quite different from the last, is that which comes from fear. Probably American girls, who are brought up from infancy to independence, are less likely to fall into this form of error than their contemporaries in other lands; still, there are timid girls everywhere who may be tempted to lie to escape punishment. Another motive, which I believe to be more common, is dread of ridicule. This point has received less attention, as a cause of falsehood than it deserves. In girlhood the thoughts, ambitions, and imaginations are exquisitely sensitive, and like all young and tender growths they are easily crushed by rough usage. Moreover the feelings are much quicker than they are in later life, and, although a young girl has still to learn their full depths, she feels acutely upon matters that seem trivial in the extreme to her elders. No other age is so responsive to sympathy or so hurt and repelled by contempt or ridicule. The dread of being "made fun of" on a subject near and dear to her will cause a girl to seek protection from wounded feeling in falsehood as soon or sooner than the fear of blame or punishment.

In fact ridicule is never a useful or safe means of dealing with girlhood. The sense of humor is almost entirely absent in children and very crude and undeveloped in youth, which always takes itself with the utmost seriousness. A sneer, a laugh, or even a look

of good-natured amusement is enough to give deep offense, or to check the sources of innocent pleasure and take away many happy hours, to say nothing of the possibility of destroying confidence and stimulating deceit.

Still another class of untruths is that arising from vanity and affectation. "Showing off" is one of the common defects of the age, arising naturally from its ever-present self-consciousness, and girls affected by it are apt, in order to impress others, particularly those younger than themselves, to say anything that will serve their purpose in this respect, no matter whether it is true or false. They will repeat compliments paid them upon their appearance by boys or young men, or praises of their proficiency in study coming from their teachers, which are wholly, or in part their own invention. In other cases they boast of personal possessions which they do not own, or of accomplishments which they cannot produce when occasion offers. If they have early love affairs they are prone to deceive their admirers as to the existence of previous attachments, leading them to suppose there were no others, or else boasting of their number and importance. No doubt there is a certain amount of self-deception in this form of untruthfulness, though much less than in the imagination of personality, but the worst thing about them is the ugly element of self-seeking and vanity, which makes it necessary to treat them with

more or less severity. Exposure in such cases often does good. If a girl who has been indulging in this form of falsehood is confronted unexpectedly with the truth in the presence of the person she is trying to impose upon, it is a most useful lesson. But whatever form of treatment is adopted, it is essential that the culprit should understand she is blamed for the wrong motives behind her falsehood quite as much as for the falsehood itself.

Lies told with deliberate intention, in order to gain some advantage or to injure someone else, are usually associated with intrinsic meanness of character or with motives of revenge. They are met with under various conditions. A girl may declare herself possessed of qualities or attainments which she knows she does not own, not, as in the case just mentioned, from the instinct of self-importance, but because she wishes to gain a coveted amusement or distinction; or she may justify herself at the expense of an innocent companion; or circulate a story which she knows to be untrue in order to injure someone against whom she has a grudge. In such cases the moral delinquency lies, not so much in the falsehood, as in the feelings of envy, hatred, and malice by which it is prompted. It is of no use to blame the offender for deceit and pass over the underlying faults of disposition.

It would seem as if a really bad disposition must exist whenever the last two kinds of untruthfulness

are present, but happily experience shows that is not by any means always the case. At this period the moral sense seems not infrequently to be abolished for the time being, by reason of backwardness of development in the rational faculties upon which the ethical sense depends. The intellectual qualities of mind, as we have already seen, including reason, judgment, and self-restraint, always develop more slowly and reach maturity later than the emotional ones, and if, as must sometimes happen, the difference between their growth should be greater than customary, the individual is left at the mercy of the emotions until reason asserts herself and will-power is developed. Of course, it occasionally happens that the moral equilibrium is never attained, and then we have the moral delinquents who become habitual criminals or not, according to character and environment. But these are the exceptions, which, as I said before, belong to the consideration of specialists. Under normal conditions the lapse of moral sense at this period is a transient phase which does not give rise to any grave misdemeanors and disappears spontaneously as reason asserts itself.

This explanation of moral delinquency in youth is every day becoming more appreciated by those interested in the training of girls and boys, and it is for this reason that such persons strive so earnestly to establish reformatories where those who offend

against the law during this state of moral feebleness, or who cannot be controlled by their friends, may be sent for a few years until their moral nature has reached its proper development. To treat such cases as criminal is the height of injustice and unkindness, to say nothing of its being the surest way of turning the unfortunates into habitual offenders.

Dishonesty in girls or young women is generally found among those who are in want of necessities, or of what might be called lawful indulgences. The craving for pleasure is one of the characteristics of youth, the appreciation of it being keener at that time than it was before or will ever be again. But with the putting away of childish things the simple pleasures, which formerly furnished all that heart could desire, suddenly lose their savor, and as the mind opens and knowledge increases all kinds of new possibilities in the way of enjoyment suggest themselves. When legitimate means of indulging these longings are wanting, it is not strange that the temptation to find ways and means should sometimes be too much for the unstable moral sense of the period. Theft of such a kind cannot be classed with the worst forms of dishonesty, and when it is committed for actual necessities, such as food, we must naturally feel that the fault lies with a state of society in which such things can exist.

Among the well-to-do, theft, when it does occur,

arises from a temporary loss of moral sense, though, of course, there are occasionally cases, in which the want of moral perception is an inherent defect. But such cases are very rare. One particular form of theft confined almost entirely to young girls, is that known as *kleptomania*. It appears almost always between thirteen and twenty, though it is occasionally seen in older women. There is a great deal of discussion as to whether this condition is one of the forms of temporary loss of moral sense, or a deliberate crime against the law, for which the offender is fully responsible. It is hard to regard it in the light of deliberate theft, for the motive, in most cases, is lacking, the girl taking articles she does not in the least need or even desire, or which she could have by expressing a wish for them. Again, the things taken are sometimes so unsuitable that they can be of no possible use or pleasure in themselves, and yet no attempt is made to dispose of them. Another argument against its being deliberate is that the impulse seems to be irresistible, even when it is almost sure to be quickly found out. Take, for instance, the case of a young girl who ordered a most expensive set of furs from a well-known shop and had them charged to a friend of her mother's, who, there was every reason to believe, would discover the fact without loss of time. As by far the greater number of cases of *kleptomania* happen in early

girlhood and recover with maturity, it seems probable that it is really one of the temporary moral disturbances.

To deal with a case of theft requires the utmost tact and discretion, whether it is a direct yielding to temptation or the effect of kleptomania. Each case must be treated according to the temperament and circumstances of the offender. It is most essential that she should feel what she has done to be wrong, and at the same time it would be a great injustice to treat her as a thief. Perhaps what is most important is that she should appreciate that the offense is one for which she could be prosecuted, and realize how near she stands to a penalty which others, less fortunate, may have to pay under similar circumstances. If a sufficient impression can be made in this way it will probably keep her straight, until she has developed sufficient moral force for her own protection.

Another form of dishonesty frequent in girlhood is debt on account of extravagance. The debts contracted by young girls are not serious and must, of course, be paid by some one responsible for them, but the moral defect is greater than it may appear at first, because it lays the foundation for a habit of debt later on. No doubt it arises, like other moral disturbances of the period, from the temporary loss of moral perception, but it is really more serious than most of the others, for they pass away spontaneously

with growth; but a habit of debt will be kept up later in life. In fact the moral sense once disturbed in this particular does not seem able to recover as it does in other cases.

The use of bad language is supposed to be a fault belonging especially to boys; nevertheless girls are by no means exempt from it at this particular age. Sometimes a girl who has never shown the slightest disposition to such a thing before will suddenly appear to be under a perfect obsession, compelling her to say all the profane or obscene words she has ever heard and a great many which it seems impossible she ever could have heard. An outbreak of profanity of this kind is quite a different thing from the swearing prompted by a fit of anger or exasperation, indeed, girls do not seem to experience this particular temptation as boys and men do, for in their case, a good fit of crying takes the place of a storm of bad words. Probably the explanation of bad language in girls is to be found in the impulse to "show off," arising from self-consciousness. The craving for attention and notice is sometimes so strong at this age that to do what is shocking is almost as great a temptation as to do what is admired, and bad language, of course, affords an easy means to the end in view.

This particular phase of moral disturbance is the only one in which contempt is useful as a cure. To show horror and distress is exactly what the offender

desires, though she may not have formulated the thought, and therefore it is the thing of all others to be avoided. If the offense is treated with silent contempt, or with a few words showing disgust and surprise at such childishness and bad taste, there will be no temptation to repeat it.

It sometimes happens that the period of life which we are now discussing is disturbed at some point by a failure of will power, or rather by a lack of its development, which affects the conduct passively instead of actively. There does not seem to be sufficient vigor of either mind or body to excite determinate wrongdoing, neither is there enough to act as a protection against it, and the results, of course, are faults of omission rather than commission. It is in such cases as this that we find incorrigible laziness. A girl goes to school if she is sent, for she has not enough energy to set up an active resistance or to play truant; but when she gets there she sits with her eyes fixed on her book and her mind fixed on nothing at all. Another manifestation of the condition is excessive disorderliness and want of cleanliness both of person and surroundings. Just at the age when a girl becomes old enough to have charge of her own toilet and is usually much occupied with its various phases, such a one as we are now discussing must either be supervised like a child or be as unpresentable as a child left to its own devices. Still another form

of the condition is a dreaminess and general want of responsibility which make the subject of it entirely untrustworthy.

Here again the question of physical causes must be considered. A depreciated state of the general health and a low vitality are frequently at the bottom of this condition. Often the discovery and cure of anemia, or of a disturbed action of the heart, will be followed by such a sudden change to vigor and activity that there seems to be a difference of individuality. Faults arising from this cause should never be set down arbitrarily as proceeding from willfulness and superfluity of naughtiness. A will thus weakened is an infirmity which ought to excite compassion, and needs to be protected and cared for until it is strong enough to stand alone, which it will do when the period of transition is over. The treatment must be governed by circumstances. Such a girl may be perfectly obedient, but nothing is gained by that. It is impossible to regulate life at this age entirely by obedience. The great point is to find out what will stimulate the will and develop the sense of personal responsibility, and that is a task that will often tax the most acute perceptions. Sometimes, in fact not infrequently, strangers are more successful in awakening energy than relatives or friends, and it may be a good plan to send such a girl away from home for a time to a good boarding school or some other place where there will

be a change of interest as well as the necessity for assuming more personal responsibility, and of keeping up appearances with strangers.

The most serious of the moral disturbances of girlhood, of course, are those connected with sex, though persons best acquainted with the subject seem now agreed that ignorance is a far more powerful agent in such cases than sexual temptation. The two chapters devoted to the various matters associated with sex, seem to be a more appropriate place for the discussion of these matters, therefore they are now only mentioned in passing.

If we take a brief review of the various disturbances of girlhood, it is plain that their presence is not in itself a cause for anxiety. The physical changes natural to the age, especially the development of complex associations in the brain, with its consequent evolution from a lower to a higher function, must inevitably be accompanied by disturbances of one kind or another, the nature of which in any particular case depends upon a variety of influences, such as inheritance, environment, education, and the most subtle of all,—*temperament*.

It is in the management of the period that occasion for anxiety lies. Not that there is anything in that management which cannot be carried out successfully and easily, provided the forces to be reckoned with are clearly understood. The difficulty lies in the fact

that the nature of these forces has not, until recently, been investigated. The object of these three chapters has been to present such information in regard to them as it has been possible to obtain from sources now open, and before concluding, it seems well to emphasize such of the points considered as suggest special food for thought.

All the disturbances of girlhood can be accounted for if only we remember that consciousness of self and realization of personal freedom are the two great influences of the period. The regulation of these two forces is the one great essential in the management of youth, but in order to carry this out successfully the difference in development between the emotions and the reason must always be borne in mind. As I have said more than once, all the emotional qualities are in excess during the early years of girlhood and the imagination has a vividness which it will never have again, but the rational qualities develop with comparative slowness. These fundamental facts, once clearly understood and kept constantly in mind furnish a solution for most, if not all the problems of girlhood.

Few parents, or those in the position of parents, realize how important the period of girlhood is, nor how tactful their own conduct must be while their children are passing through it. The task before them is to combine watchfulness and care with the personal freedom that youth requires for its full development,

and it is not an easy one. Naturally it is hard for parents to see a child make grave mistakes and involve herself in unhappiness because she will not consent to profit by their experience of life. Yet this is just what a wise parent will try to do. I do not mean, of course, that girls should be allowed to do what will injure their characters, or involve them in permanent suffering; still less that they should act so that they are condemned by the outside world. In the larger affairs of life, whose consequences are far-reaching, they need to be controlled, more or less as they were in childhood. But in the smaller affairs of everyday life, they had much better be left to their own devices, even though these will surely lead them into trouble. Only by their own experience can they learn what is worth knowing, and only by bearing the consequences of their own mistakes will they find out how to protect themselves in the future, even if they burn their fingers — as they undoubtedly will — in the fiery furnace of experience.

Nothing, moreover, inspires confidence between youth and those in authority over it so quickly as the absence of interference, and nothing calms and regulates the agitation of the period so entirely as the presence of confidence and the knowledge of sympathy. As someone has said, "What youth wants most is *room*." And if it recognizes that space to grow in its own way is willingly granted, not grudgingly con-

ceded, the great difficulty in the situation is overcome.

Above all, the reserve of youth should be respected. I have tried to show that it is not the result of deliberate concealment, but a lack of self-comprehension and of power of expression. Youth is naturally inarticulate and must remain mute as to its own mental processes until such time as its faculties are fully and evenly developed. Fathers and mothers who can refrain from interference, respect reticence, and sympathize with ill-regulated emotion during girlhood, will reap a rich reward in that life-long friendship with their daughter, which is one of life's most precious possessions.

CHAPTER IV

REPRODUCTION

Nature of reproduction — Difference of the process in the lower and the higher forms of life — Manner of reproduction in ameba — In hematococcus — In heteromita — In vaucheria — In polygordius — In crayfish — In the fish — In the bird — In the mammal — In the human being.

ALL the various functions of the body are established at birth with one exception, namely, that of reproduction, which is not developed in any living thing, whether animal or vegetable, until it reaches maturity. The establishment of the function in the human being is accompanied, especially in girls, by changes affecting both mind and body, which have been described in the previous chapters. The anatomy and physiology of the reproductive organs, however, as well as the nature of the reproductive process itself are still to be considered. For a girl to grow up uninformed of these facts and of the natural laws connected with them is doing her a great injustice, because she then enters life unprepared for some of its most serious problems and may have to pay heavily in health or happiness for her ignorance. Our present custom of surrounding all matters of sex and of re-

production with an atmosphere of mystery is a most unfortunate policy and we have reason to rejoice at the perception, now growing up on all sides, that the open, direct treatment of such subjects is a duty parents owe to their children. There seems to be a general agreement among those interested in the question of sex from the educational standpoint that the best way to make the subject clear to young minds and to place it before them in a right light is to explain the evolution of the process of reproduction as it appears in the different forms of life from the lowest to the highest, illustrating the different stages by the description of types showing special characteristics. This is the method I propose to follow here, though it is impossible in the space at command to do more than present the most distinctive forms.

Every living thing is able to reproduce itself. It is, indeed, the power of reproducing its kind that distinguishes life from what is inanimate. Inanimate objects can increase in size by the addition of more of their own substance, but only living things can multiply their kind by the production of a new individual in their own likeness. The manner of reproduction differs greatly in different forms of life, but whatever the variations may be, they are always in accordance with the position in the scale of life. In the lower forms, reproduction is more or less simple; in the higher more or less complex. It is more intricate in

a dog than in a bird; in a frog or a fish than in a lobster; in a worm than in a jelly-fish, and the same differences exist in vegetable life, though they are not so constantly before us. The reproduction of a rose is a much more complicated process than that of a seaweed.

One of the lowest and simplest of all living things is the *ameba*, an animal organism so small that it can only be seen through the microscope. It consists of one single cell, composed of a transparent jelly-like substance called protoplasm, which contains a central spot, known as the nucleus, the whole being surrounded by a wall formed of the cell substance. But this cell, tiny as it is, is able to carry on within itself all the processes necessary to life — it moves, it breathes, it digests, and finally, it reproduces itself, all in the most elementary manner. The process of its reproduction is as follows: First, the nucleus divides into halves and the two halves immediately move away from each other; next the ameba stretches itself out in such a manner that it becomes extremely thin just between the two nuclei and, finally, it separates at this spot. No sooner has the separation taken place, than the cell wall closes again on each side so that there are two cells, each exactly like the parent cell except that it is a little smaller and each ready to begin life on its own account as a separate individual. This process of cell division is the first step in all reproduction, the

division of the nucleus being the essential point in the process; and it always takes place in the manner just described, the nucleus dividing first and the cell substance afterwards. The behavior of the cell wall, which is not necessary to reproduction, varies in different forms of life.

The next stage in reproduction is well illustrated by a one-celled vegetable organism called the *hematococcus*. It is slightly higher in the scale of life than the ameba and its mode of reproducing itself is, therefore, a little more advanced. The first division of the cell substance into halves takes place exactly as in the ameba, except that the cell wall, which is harder in the hematococcus, remains unbroken, the division of the cell substance taking place within it. But the process does not stop at a single division, as in the ameba; as soon as the two new cells are formed, they each divide again, so that there are four daughter cells within the wall of the mother cell. The cell wall then breaks up and goes to pieces, while the new cells separate and move a little apart from each other. Each of them then develops a new cell wall of its own, having at one point in it a pair of little filaments, called flagella, by means of which it moves about.

We next come to the stage where the presence of two individuals is necessary to reproduction, although the part which they take in it is of the simplest description. A good example of this type is another little

one-celled organism, called *heteromita*, which is sufficiently advanced to have a front and a hind end. At times the heteromita swims freely about in the water where it lives; at others it attaches itself to some object which it encounters, such as a bit of stick or a piece of straw, and remains stationary. When it is ready for reproduction, one of the swimming forms approaches a stationary form and attaches itself to the latter in such a way that the hind ends of the two come into contact, after which the two cells mingle with each other, just as two drops of mucilage on a plate might do. This fusion of two individual cells is called conjugation. Out of the mass of protoplasm formed by their union a new cell is formed, which, after undergoing various stages in development, becomes a full grown heteromita exactly like the parents.

The next step in the evolution of reproduction is a most significant one, namely, the first appearance of *sex*. In the heteromita the presence of two individuals was necessary to the production of a new one, but they were exactly alike; now we reach a point where they are different from each other, one representing the male and the other the female. Another sign of advance is that only a part of the cell takes part in reproduction instead of the whole.

The best example of the type for our present purpose is a vegetable form called *vaucheria*, which is the highest of the one-celled organisms, or rather, it is an

intermediate stage between the one-celled and the many-celled forms. *Vaucheria* is large enough to be seen with the naked eye, though the process of reproduction cannot be observed without a microscope. It consists of long green filaments which lie closely packed together forming a slimy mass on the surface of stagnant water. Along the filaments many nuclei are scattered at intervals, but there is no sign of cell walls between them, so that the plant cannot be said to be either one-celled or many-celled. When reproduction is about to take place, which happens only at certain seasons of the year, little buds appear at intervals along the sides of the filaments, each bud containing a nucleus which has separated from a larger one near by. The buds are arranged in pairs, one of each pair being a little longer than the other. As soon as they are distinctly formed, the shorter bud swells up into a round blunt point, after which a cell wall forms around it, so that it is shut off from the rest of the filament and converted into a separate cell containing its own nucleus. This cell is called the *ovary* and represents the female. While the short bud has been swelling, the long one has grown still longer and after it reaches a certain length, the tip divides into a separate cell as in the shorter bud. The new cell thus formed is called the *spermmary* and represents the male. The spermmary now bends over upon itself until it is nearly double and its tip approaches closely to the

ovary. Next the cell wall of the ovary breaks down at one point and a little bit of protoplasm comes out and disappears. After this the remainder of the protoplasm within the ovary separates itself from the cell wall and becomes what is called a "naked cell," that is to say a cell having a nucleus but no wall. This naked cell is the *ovum* or egg. In the meantime the spermary has multiplied by cell division inside the cell wall, until there are a great number of tiny cells, each of which has developed a pair of flagella as in the hematococcus. These tiny cells are *sperm cells*. The walls of the spermary now break down and the sperm cells escape, moving away by means of their flagella. Some of them approach the ovary and pass through the opening in its wall, after which one of the number attaches itself to the ovum and the two fuse together as in the case of the heteromita.

The sperm cell and the ovum are the two essential elements in reproduction wherever it may be, the sperm cell being the male and the ovum the female element. Motion is the special characteristic of the sperm cell, for its function is to search for the ovum, which is always passive. For this reason the sperm cells are provided with flagella. The union of the sperm cell and the ovum is called *fertilization* and it takes place in all forms of reproduction. The essential point in it is the union of the two nuclei, one from the male and the other from the female cell. The

process of reproduction in vaucheria, simple as it is, does not differ in anything essential from the same process in the higher forms of life and the terms employed in the description just given are those employed at every stage in the scale of life.

We now reach the many-celled organisms, that is to say living things composed of numbers of cells, modified in many different ways to perform different functions. With every advance in the scale of life the cells become more numerous and more distinctly adapted to special forms or functions. All the various tissues, parts, and organs of every living thing consist of cells which have undergone whatever kind of development and modification was necessary to fit them for their particular office. The specialization of cells becomes more and more complicated with each advance in the scale of life until we reach the human being, where it attains its highest development. In all many-celled organisms, whether high or low in the scale, one particular set of cells is set apart and adapted for the purpose of reproduction, the male and female being separate individuals.

A good example of the lowest many-celled organisms is a tiny worm an inch or so in length, called *polygordius*, which lives in the sand at the bottom of the sea. The interior of its body, as in all worms, is divided into segments and in all of the segments, except a few at the extreme ends, are heaps of cells

devoted to the function of reproduction. In the male worm, when the season for reproduction comes round, these special cells divide and re-divide over and over again, the new cells thus formed taking on the special characteristics of sperm cells. In the female worm the cells instead of dividing increase in size and at the same time develop the characteristics of ova. By this process of multiplication in one case and enlargement in the other the interior of each segment becomes filled with sperm cells or ova, according to the sex of the individual worm. When the ova have reached a certain size, the body of the worm splits at some point in each segment and the ova escape, remaining just where they happen to fall. The sperm cells also escape from the body of the male worm, though it is not known whether they do so in exactly the same manner as in the female. As soon as the sperm cells are free, they begin, as usual, to move in the direction of the ova by means of their flagella. Every sperm cell that meets an ovum fuses with it, after which the new cell formed by their union divides into two and the development of a new worm begins.

At the next stage of reproduction, represented for our present purpose by the *crayfish*, the reproductive organs are still more specialized. In the male crayfish they form a definite organ called the testis, which is filled with sperm cells and represents a further development of the spermary in *vaucheria*. The testis

lies about the middle of the body cavity in the median line and from each side of it proceeds a tube called the *spermiduct* which leads to the exterior and opens on one of the legs. In the female crayfish the reproductive cells form an ovary containing ova and communicating with the exterior by means of a passage called the *oviduct* which opens in a manner similar to that of the spermiduct. When reproduction is about to take place the bodies of the male and female crayfish come into close contact, after which the sperm cells pass out through the spermiduct and are deposited on the body of the female at a point near to the opening of the oviduct. Shortly after this occurs the ova escape from the ovary and pass out through the oviduct. As soon as they reach the outside they encounter a sticky substance secreted by a gland in the vicinity, which fastens them to the body of the female and keeps them stationary until the sperm cells have a chance to reach them and fertilization can take place. As soon as the ova are fertilized, they drop off the female and remain where they fall while undergoing further development.

We now reach the important class of vertebrates, which is comparatively high in the scale of life, an advance shown, as regards reproduction, by the fact that fertilization takes place within the body of the female. In the fish which will answer very well for the purpose of illustration, the reproductive organs

are much the same as they are in the crayfish except that the male has two testes while the female has but one ovary. The ovary has two oviducts, however, one on each side; but instead of leading directly to the exterior, they unite so as to form a single tube opening on the outside. Each testis has a spermiduct which dilates near its outer end so as to form a pouch in which the sperm cells collect and the pouches terminate in tubes leading to the exterior. When reproduction takes place the male fish comes into contact with the female and the sperm cells collected in the pouches of the spermiduct pass out of the body of the male into the lower part of the oviduct, where the ova are fertilized. Soon after fertilization takes place the ova pass out of the oviduct and are deposited in the grass and weeds. In the course of its passage outward each fertilized ovum is surrounded with a horny substance that serves as a protection during its development. This substance is secreted by a gland called the shell-gland situated in the widest part of the oviduct.

The process of reproduction in the frog is much the same as it is in the fish, but the eggs of the frog are covered with a slimy jelly-like substance that forms a protective covering and also provides food for the developing ovum. The presence of protection and of nourishment for the ovum during the period in which it is undergoing the further stage of its

development shows a distinct advance in the reproductive process.

With birds we come to a still higher stage in reproduction though the advance is more apparent in the condition of the ovum during its development than in the reproductive process itself. The organs of reproduction in the bird are not essentially different from what they are in the fish or the frog. The female bird has only one ovary which lies in the abdominal cavity on the left side of the spinal column. The oviduct leading from it is dilated at the end next to the ovary and there is another still larger dilation near the other extremity. It does not open directly on the exterior, but into a passage called the cloaca where the organs concerned in excretion also discharge their contents.

The ovary in the bird is filled with ova in different stages of development embedded in a mass of tissue. A mature ovum, when it is ready to escape from the ovary, consists of a light yellow body enclosed in a delicate membrane and having at one point a slightly darkened spot or disc. The yellow substance is known to us as the yolk of the egg and the disc is what old cooks call "the chicken." Cell-division and development take place only in the disc, the yolk serving solely for nourishment.

When the ovum escapes from the ovary it passes into the dilated portion of the oviduct. Here it is fertilized by the sperm cells and passes on downward.

The white of the egg, which surrounds the yolk, is secreted by glands situated in the walls of the oviduct and surrounds the ovum as it passes through it. Another set of glands a little further down the oviduct secrete the substance that forms the shell. When first deposited around the egg the shell is quite soft and slimy, but when the ovum reaches the lower dilation of the oviduct it remains there for twelve to eighteen hours during which time the shell becomes quite hard. After this the fully formed egg, surrounded by its shell, is expelled from the dilated portion of the oviduct by violent contractions of the walls and passes out through the cloaca to the outside. In other words *it is laid*.

But, if nothing more were to happen the egg of the bird would never develop any farther. It cannot take care of itself, or rather do without any care at all, like the eggs of the lower animals. With the bird we reach the stage in development known as *warm-blooded*, which means that the temperature of the animal's body remains always the same in health and does not change according to the surrounding atmosphere as in frogs, fish, and other so-called cold-blooded animals. It is necessary to the development of the ova of warm-blooded animals that they should be kept at the temperature of the mother's body until they are able to take care of themselves. In birds the necessary warmth is furnished by means of the process

known as *sitting*, during which the mother keeps the eggs close to her body and consequently always at the same temperature with it until they are ready to come out of the shell. This period in the chicken lasts for twenty to twenty-one days at the end of which time the little chick is quite formed and, as Mr. Foster says in his book upon the subject, "steps out into the world."

Here is a distinct advance upon the process of reproduction in cold-blooded animals. The ovum depends upon the mother for protection during its period of development, which is not the case in any of the lower animals. Moreover, it is provided with nourishment during its development as well as protected from external injury by the shell. These last two points are present in the higher of the cold-blooded animals, but in a less mature degree.

We now come to the highest class in the scale of life, the class known as *mammals*, or *mammalia*, to which man, on his animal side, belongs. With mammals the ovum is not only fertilized within the body of the mother, but develops within it as well until it is fit for an independent existence. Moreover, after its separation from the mother it is nourished by her until the first stage of its life is over. The name mammal, derived from the Latin *mamma*, a breast, is taken from the organs by means of which this function is performed.

In the dog, which affords a good example of the typical features of the mammalia, the female has two ovaries each with its oviduct, situated as usual in the abdominal cavity, one on each side of the spinal column. The upper ends of the oviducts consist of a number of long processes forming a fringe which lies close against the ovary without actually opening into it. At their lower ends the oviducts open into an organ called the *uterus*, where the ovum, after fertilization, is received and nourished during its further development. The uterus in its fully developed form is present only in the mammalia, though there are suggestions of it in some of the lower animals. The lower dilation in the oviduct of the bird is, no doubt, a stage in its evolution and is sometimes, incorrectly, spoken of as the uterus. In the dog and some other mammalia the uterus has two long horns, in each of which several ova can develop at the same time. This arrangement is present in all animals where the young are born in families, such as puppies, kittens, or rabbits. But in those mammals, such as the horse and the cow, where one ovum develops at a time, the uterus has a rounded or a pear-shaped form.

Whatever may be the shape of the upper portion of the uterus its lower end is always elongated and somewhat resembles the neck of a bottle, from which fact it has received the name of the *cervix*, or neck. The cervix opens into a passage leading to the exterior,

called the *vagina*. In all animals up to this point the reproductive organs have opened into a cloaca common to them and to the organs of excretion, as in the bird. The presence of a passage devoted exclusively to the reproductive organs is another evidence of higher development.

The male dog has two testes, which instead of lying inside the body as heretofore, are contained in a pouch of skin outside it. They are filled with a great many tiny tubules called the *seminal vesicles* which contain the sperm cells. Connected with the testes by a very complicated arrangement is a hollow organ, the *penis*, by means of which the sperm cells are conveyed into the vagina of the female when the time for reproduction arrives.

At intervals, which differ in different animals, and in the dog are about six months, the ovaries and the uterus become congested and swollen, after which the thick outer covering that surrounds them breaks down at places and such of the ova as are ready to be fertilized escape. They are then caught by the fine processes at the end of the oviduct and pass into its interior. This process is known as *ovulation*. The walls of the oviduct are lined with thread-like filaments called *cilia*, which sweep the ova along the passage in the direction of the uterus. At the same time the sperm cells move up from the vagina by means of their *flagella* and when one of them meets an ovum fertiliza-

tion takes place. After the ovum is fertilized it continues to move downward until it enters the uterus, where it finds the mucous membrane that forms the uterine lining so swollen and softened that it has no difficulty in forming an attachment to it, after which it continues its development. In the dog, as I said, several ova (commonly six to eight) develop at the same time, but the process of fertilization is the same in all mammalia, whether it is single or multiple.

As the mammalian ovum is not provided with any means of nourishment such as the chick possesses in the yolk and white of the egg, some other form of sustenance is necessary. For a little while after the ovum becomes attached to the wall of the uterus it is nourished by the blood vessels in the uterine mucous membrane, but in a short time blood vessels begin to form in the ovum itself and a connection is established between them and the blood vessels in the uterus by means of an organ called the *placenta*, which is present only in mammals. The placenta is a flat round mass composed of soft, spongy tissue and full of blood vessels communicating on one side with those in the uterus and on the other with the vessels developing in the ovum. By means of this arrangement the *embryo*, as the ovum at this stage of its development is called, derives nourishment from its mother until it is ready to separate from her. The period of time during which the developing embryo remains in the

uterus is called *pregnancy*. Its duration differs in different animals; in the dog it is sixty days. At the end of it violent contractions of the uterus come on, as in the case of the bird, and the young animal is forced out of the uterus through the vagina to the exterior; in other words *it is born*. This process of expulsion from the uterus is called *delivery*. After the animal has been expelled from the uterus the placenta also is expelled and the connection between the two is severed.

But the young animal is feeble and helpless, wholly unable to help itself or care for itself as the little chick can do, and therefore entirely dependent upon its mother for protection and nourishment. The means for its nourishment are provided by glands called the *mammary glands*, which secrete milk just as other glands in the body secrete saliva or the digestive ferments. There is one peculiarity, however, about the mammary glands, which is that instead of being more or less active at all times, as in other cases, they only begin to secrete when a young mammal is born and their secretion is needed. As soon as the little animal is old enough to eat ordinary food and the demand upon the mammary glands is over the secretion ceases.

I have not yet described the process of development in the ovum after fertilization because there is not sufficient resemblance between the process in cold-blooded and warm-blooded animals (after the first

stage of cell division is over) to make it worth while to take up the matter before reaching this point. In all mammals, however, the process is the same and the only difference between them and birds is that the nourishment furnished by the yolk in birds is supplied in mammals by the placenta.

The outlines of the process in mammalia are as follows: The ovum, as soon as it is fertilized, begins a process known as *segmentation*, that is to say of repeated cell division. The one-celled ovum divides into two, the two new cells into four, the four into eight, the eight into sixteen and so on until, finally, there is a mass of cells too numerous to count. After segmentation has reached a certain point the cells separate themselves into distinct masses and those contained in each mass assume special characteristics. The masses then proceed to develop in different positions and upon different planes, the various parts of the body being all evolved in this way. The study of the different stages in the development of either the mammal or the chick is one of the most fascinating branches of scientific investigation and has been followed with great minuteness, but it is far too complex to be described here, even in the most superficial manner. All that can be said is that every organ or tissue of the body, whether of the human being, the dog, the bird, or any other animal is formed by the multiplication and specialization of cells, the special character-

istics of each kind appearing at a definite point in its development. What is, perhaps, the most wonderful thing in the whole remarkable process is that, no matter whether the organism is low or high in the scale of life, no matter whether it is a human being or an ameba or anything between, the first step is always the same, that is the division of one cell into two. In the ameba this single division is all; in the human being it constitutes merely the first step in a most complicated process occupying a period of months; but the fundamental stage is the same in both, as well as in every form of life between them.

The process of reproduction in the human being is the same in all essentials as it is in the dog or any other mammal, though it has, of course, certain individual peculiarities. The ovaries in women are two thick oval bodies, about the size of bantams' eggs, situated in the extreme lower part of the abdomen. Ovulation takes place in the human being in the same manner as in the dog, but at intervals of four weeks. At these intervals the ovaries become swollen and congested in consequence of changes taking place in the ova with which they are filled. If an ovum is ready for fertilization it approaches the surface of the ovary and the thick outer capsule breaks down at that point, after which it is caught by the fringed border of the oviduct, passes into the interior, and proceeds downward. If the ovum does not meet with any sperm

cells as it passes down, it dies and disappears, but if the sperm cells are introduced into the vagina at that time, one of them will probably encounter the ovum in the upper part of the oviduct and fertilization will take place. But as only one ovum is cast off at each ovulation, fertilization is not so sure to take place in the human being as in the lower mammals where several ova are thrown off at a time.

The fertilized ovum continues to descend until it arrives in the uterus, where it becomes attached to the wall and is nourished by the placenta in the manner already described, the only difference in the human being being that nine months are required for the development of the embryo. At the end of that time it is expelled by muscular contractions as in the dog, but here there is an important difference, for whereas in animals these contractions are accompanied by only a slight amount of pain, in the human being they are attended by very severe suffering. After the uterus is emptied of its contents, it gradually returns to its former size, which has, of course, been greatly enlarged by the developing embryo. This process requires four weeks for its accomplishment and it is of the utmost importance to a woman's future health that it should not be interfered with by over-exertion of any kind.

The great peculiarity of the reproductive process in human beings, which distinguishes it from the process

in any other of the mammalia, is that it is accompanied by the function known as *menstruation*. This condition is peculiar to human beings though it exists in a modified form in certain monkeys. Its mechanism is as follows: In ovulation the swelling and congestion of the uterus and ovaries is very well marked and under its influence the smaller blood vessels in the mucous membrane lining the uterus break down, causing a flow of blood which passes out of the vagina, becoming mixed with more or less mucous secreted by the vaginal glands as it passes through. This hemorrhage, as a rule, accompanies every ovulation as long as the ovum is not fertilized, recurring at intervals of four weeks until reproductive activity is over, which usually happens between forty and fifty years of age. If fertilization takes place, however, ovulation and menstruation cease until after delivery, and in many cases they are also absent as long as the child is dependent upon its mother for nourishment and the mammary glands are secreting.

The cause of menstruation is not yet understood. All that we do know in regard to it at present is that it is in some way connected with ovulation and that it usually, though not invariably takes place at the same time. Menstruation exerts a marked influence upon the lives of girls and women and its relation to health is of such importance that it is important they should understand all the facts in regard to it. Much harm

has been done in the past by ignorance of the real facts concerning it and even more by profane and old wives' fables circulated in regard to it. In order, therefore, that the facts may be fully understood in their right relations, the next chapter is devoted exclusively to the subject.

CHAPTER V

MENSTRUATION

Age of first menstruation — Influences affecting its appearance — Length of interval between periods — Duration of periods — Amount — Care of health during menstruation — Dysmenorrhea — Amenorrhea — Menorrhagia.

I

MENSTRUATION is the name given to the discharge of mucous and blood that takes place from the uterus at regular intervals during the reproductive period of a woman's life. We do not yet understand its cause. All that we do know about it at present, as was said in the last chapter, is that it is closely associated with the process of ovulation and usually, though not invariably, takes place at the same time.

The appearance of menstruation shows that the reproductive organs have reached maturity and begun the exercise of their function. There is no fixed age for its establishment, or rather for the establishment of ovulation, which it represents, since they both depend upon the development of the reproductive system, and this is influenced by various causes. Climate and race are among these influences, the women of warm

southern countries coming to maturity, as a rule, earlier than those in the colder northern climates. In the United States the average age for menstruation is a little over fourteen, but there are many cases in which it is earlier or later than this. It is a matter of common observation that menstruation is apt to appear at about the same time in different members of the same family, and that it generally begins at the same age in mothers and daughters. Consequently, whenever it has been unusually early or late in one generation, it may be expected to be so in the next.

But of all the conditions that influence the age of first menstruation, stimulation of the nervous system and the state of the general health are the most powerful. Any circumstance in a girl's life that stimulates the mind or the emotions is likely to favor early menstruation. City girls generally menstruate earlier than country girls, because they live under conditions of higher pressure and are exposed to the forcing effects of constant notice, social intercourse, and all the pressure of an over-full life. The age of first menstruation is also influenced by the condition of the general health, that is to say, it is apt to be delayed in cases where the health is below the proper standard. In girls of the poorer classes, who are habitually overworked and underfed, it almost always appears later than in those in more comfortable circumstances.

Owing to the presence or absence of these various

influences, the appearance of menstruation varies over a limit of some years, and while the average age is about fourteen years, it may appear as early as eleven or as late as eighteen, without any reason for anxiety.

Over-early menstruation is a matter for regret, however, because the periodical loss to the blood-making system is a drain upon the strength, and even more because it shows a premature physical development; but there is no reason for fancying that it indicates the presence of disease in the organs concerned. On the contrary, the early establishment of menstruation shows that the reproductive powers are unusually strong and vigorous.

Delay in first menstruation usually proceeds from depreciation of the general health, resulting in retarded development of every kind, the condition making itself known by pallor, loss of flesh, and all the customary signs of impaired health. That the menstrual function should not appear under these circumstances is no reason for uneasiness; on the contrary, it is a thing for which to be thankful, because it saves the vital powers from a tax upon their resources which they are not in a condition to support. The absence of the function may, however, be taken as evidence that the general health requires attention.

There are a few rare cases where menstruation fails to appear at the customary age, because the reproductive organs are imperfectly developed. When this

happens, the general health shows no sign of depreciation, in fact, it may be actually robust, but the usual indications of approaching physical maturity are absent. When menstruation does not appear at the age at which it might reasonably be expected, the family doctor ought to be consulted, but there is no occasion for seeking the advice of a specialist (unless the doctor recommends doing so) and *on no account whatever should medicine be given to stimulate the flow*. It cannot possibly do good and it may do a great deal of harm.

There is only one condition in which the failure of the menstrual function to appear at the usual age need cause anxiety and this is when the non-appearance is due to the presence of mechanical obstruction. This condition is of extreme rarity, but when it does exist it is easily recognized and should never be neglected. It may be suspected when attacks of pain in the abdomen accompanied by headache and, perhaps, bleeding at the nose, appear at about the time menstruation might be expected and recur at intervals corresponding, in a rough way, to the periods. The physical signs of puberty are also present. A specialist ought to be consulted without delay, for neglect may result in serious consequences and the treatment should be carried out only by a specialist.

The period of life at which ovulation and menstruation begin is called *puberty*. It is the most im-

portant phase in the development of girlhood and requires the utmost care, both physically and mentally. The daily life at this time should be as regular and healthy as possible. Food ought to be abundant and nourishing but simple, and it is a great mistake to allow the use of tea or coffee or any other stimulant habitually. As many hours of the day as possible should be passed in the open air. A girl at this age (from twelve to fifteen) usually spends her mornings in school, but her afternoons ought not to have any claim upon them which interferes with her being out of doors until dark. If she goes to a school that has two sessions, she must spend all the time between them, not occupied with dinner, out of doors, as well as any daylight that remains after the second session closes. Her work at school must be carefully watched, and if she shows signs of more than passing fatigue, it must be lessened, no matter whether her standing in class is injured or not. This question is fully considered in the discussion of education, for it is one of great importance. Above all things, there must be abundance of sleep. This is a point upon which a girl's necessities are not always appreciated. Everyone agrees that a child ought to be in bed by nine o'clock at the latest, but unfortunately there is a common impression that about the time a little girl enters what are called her "teens," she is getting old enough to do with less sleep and may, therefore, go to bed

ater. But this is exactly the time when she is beginning to grow most rapidly and her physical necessities as regards every kind of nutrition are greater than at any other time in her life. Her mind is developing in all directions, and most significant of all, her sexual system is just reaching maturity and her nervous system is more or less disorganized in consequence. In fact, it is only necessary to consider these things to perceive that this is no time to curtail her allowance of sleep any more than her allowance of food. Her nervous system, in particular requires frequent periods of repose, because if it is unduly stimulated, there is risk of over-early maturity, and nothing protects the nervous system so effectively as abundance of healthy sleep.

Amusement and pleasure are not only desirable, but really necessary at this time in life, when the mind and body are charged with activity; but they ought to be of a kind suited to their undeveloped condition. Entertainments that keep a girl up until midnight and later must not be allowed except on the rarest occasions. To put the matter in a few words, the more the life of a girl during the period of puberty resembles the life of the child before the period began, the better for body and mind. She cannot of course, live exactly as she did in her childhood, for her mind is developing fast and her position in the world around her is changing rapidly; but the kindest and wisest thing that can

be done for her is to encourage her to do so as far as possible.

The general health at puberty is sometimes good; in other cases more or less upset. The strain upon the physical powers caused by the establishment of the reproductive functions is more in some instances than can be borne without some degree of failure. This temporary weakness of the bodily powers takes various forms, according to individual constitution. The only thing which can be done is to exercise patience and good sense. All the different means of improving the general health, including medical advice, should be tried, and this being done, it is safe to trust that everything will come right in the end.

From time immemorial the interval between the menstrual periods, that is to say, between the periods of ovulation, has been accepted as twenty-eight days, or one lunar month. This apparent connection between the return of the function and the changes of the moon has caused the belief among uncivilized people that it is under the moon's influence. In a few rare cases the regular interval is more or less than four weeks, but these are most unusual. In one analysis of a thousand cases of menstruation in healthy women, it has been found that the interval was twenty-eight days in 942 cases, while out of the remaining 58 the interval was twenty-one days in more than half. In other words, the twenty-eight-day type existed in

over nine-tenths of the cases, and of the variations upon it, the twenty-one-day type was by far the most frequent.

Four weeks then, may be accepted as the regular interval. If another type is established in the beginning and continues regularly without disturbance of health, it is normal in that particular instance; but such exceptions are very rare. In this respect, as in the age of first menstruation, family peculiarities assert themselves strongly, and any variation from the established custom in one generation will probably appear in the next.

During the first years of menstruation, the interval between the periods is apt to be irregular, because the development of the organs is not complete nor is the function fully established. Sometimes these early irregularities are considerable. For example, after the first period, there may be no return of the function for six months, or even a year. Permanent regularity is sometimes established in the course of a few months; in other cases it takes two or three years; in a few instances the function is perfectly regular from the beginning. After regularity is once established there ought not to be more than a few days' variation in one direction or the other. But trivial irregularities of a day or two are not at all uncommon and there is no reason whatever for uneasiness on their account. Their cause is not understood, but it probably lies in

some influence of the central nervous system. With some women these irregularities occur constantly all through menstrual life; with others, the function returns regularly almost to the hour as long as it continues. Some of the books written on the subject for the general public lay far too much stress upon the necessity of absolute regularity to health, which is a pity, because it is apt to excite needless anxiety in regard to trivial variations.

In married women menstruation ceases, as described in the last chapter, whenever an ovum is fertilized, and does not return until after delivery.

The duration of the menstrual period differs in different women, that is to say, each woman has her own individual standard which may be several days longer or shorter than that of another woman. The time may be as short as twenty-four hours and as long as seven days. But both of these types are extreme and exist in only a few cases. The usual time is from two to six days, four to five days being the most common type. Whatever duration is established in each individual instance is the proper thing for that particular girl. Irregularity in the length of the period is of more consequence than irregularity in the intervals between them, and merits more attention.

The amount of the menstrual discharge also varies greatly in different women, what is normal for one being excessive for another, or deficient for a third.

One fact, however, which is the same in all cases, is that the greater part of the flow is during the first two days, so that there is not so much difference as might be imagined between cases lasting three or four, and those lasting six or seven days. To estimate the exact amount of menstruation is very difficult; in fact it is impossible to do so with absolute accuracy, but the common way of estimating by the number of protectives used, rough as it is, answers the purpose fairly well. Speaking generally, it may be said that if more than two in twenty-four hours are really needed, the flow is too free; but there are many exceptions to this standard with women in perfect health. The important point, however, is not so much the actual amount as the presence of increase or decrease from established custom in any individual case, and this fact is easily determined by the usual mode of estimating. If the number of protectives employed is more than is customary for one or two successive periods, the reason for the change should be investigated. In young girls it will almost always be found in some disturbance of the general health.

Care of the general health at the menstrual period during girlhood is most important, especially while the function is becoming established, but this does not mean that it is necessary for a healthy girl to upset the usual routine of her life. Theoretically, of course, a girl ought not to know any difference, as far as her

sensations are concerned, between the menstrual periods and the intervals between them, but practically such a state of things is uncommon, especially among Americans. The rush and pressure of our modern life, with all its varied demands upon the intelligence and the senses, has made our nervous systems more sensitive than they ought to be, even when the general health is good, and as a result, the process of ovulation is generally accompanied by more or less nervous excitement, which expresses itself in pain and discomfort associated with menstruation. The amount and the nature of the disturbance vary with different persons, and even with the same person at different times, but not many women escape altogether. The proportion of cases entirely free from suffering or discomfort has been recently investigated by a German woman, Miss Tobler, who found that out of one thousand women and girls whom she questioned on the subject, only sixteen per cent were altogether free from discomfort of any kind.

The disturbance accompanying menstruation may be local, that is, situated in the region of the uterus and ovaries, or it may be reflex, that is, reflected to some other part of the body. It may vary from the most trivial discomfort to acute suffering. In what might be considered an average case, there is more or less pain in the lower abdomen, extending down the limbs, with languor and nervous irritability, and, pos-

sibly, some headache. Usually the disturbance begins a little before menstruation appears and passes off as the flow, which is apt to be scanty at first, becomes more free. Sometimes, instead of local pain, there is severe headache and marked excitement or else depression.

In a normal case these symptoms are not severe enough to incapacitate a girl; indeed, if they are, the case is not normal. Care is required at the periods mainly from motives of prevention, for, as all the discomforts attending the function are due to disturbance of the central nervous system, it is the nervous system which requires relief from strain at these times, and if period after period passes without any measures being taken for rest and relief, the nerves will almost certainly become unduly sensitive, after which the suffering at the periods is very severe. A girl herself is not, of course, sufficiently informed at the time menstruation begins to comprehend the necessity for care, nor the best means of taking it; it is her mother upon whom this responsibility must rest. But sometimes it happens that, with the best intentions, a mother may err from a lack of the requisite knowledge. She may advise too little care, because she is honestly persuaded that it is best to take as little notice of the matter as possible; but more often, she will go to the other extreme and pay too much attention to it.

An old-fashioned idea, which possesses considerable hold in some quarters, is that the first day of the period should always be passed in bed even by girls who are altogether free from suffering. Such a thing is possible, of course, only with people of leisure, but it has a much stronger hold among them than it deserves. The public, however, can hardly be blamed for lending itself to the idea, when it originated with the medical profession. It is only within comparatively recent years that the diseases peculiar to women and the conditions associated with their reproductive organs have been understood, and the first effect of advancing knowledge upon the subject was to give physicians an exaggerated idea of the necessity for caution in all such matters, which very shortly extended itself to the laity. Out of this mistaken view grew the impression that the only way in which menstruation could be performed normally and without distressing suffering was for every woman to spend at any rate the first part of the period in absolute quiet and, if possible, in bed, especially during girlhood, when the function was just established. But as our knowledge of ovulation and menstruation developed, it became more and more plain that in this respect our zeal has outrun discretion. We know that menstruation is a normal function, filling a natural place in the life of women, and that in simpler and more primitive conditions of life it is free from any discomfort whatever. It is foolish,

therefore, to treat it as something approaching illness. Isolation and semi-invalidism are almost certain to do harm; they are greatly to be regretted in cases where they are made necessary by severe suffering, and to inflict them arbitrarily upon a healthy girl is a risk to her health and her disposition. The essential point in the care of menstruation is to remember that it is associated with a certain amount of nervous excitability, and therefore it is advisable to keep the nervous system as free as possible from strain or excitement.

There is no reason why a healthy girl should not go to school, at any rate after the function is fully established, nor that she should not walk there, if she is in the habit of doing so and the distance is not great. But her school work ought to be carefully watched and it may be better to keep her at home for a few periods while the function is becoming established. Teachers are usually willing and even anxious to save their pupils at such times,—the difficulty lies with the girls themselves, who are afraid of losing standing in their work. It is a good plan to explain carefully to a girl how much good a little care at these times will do for her future comfort and health, to say nothing of her ultimate standing in the school. Many a girl has had to leave school altogether in her last year, because she would not take, or would not submit to the necessary precautions during her earlier years there. Examinations at school and at college cannot usually be avoided,

but they happen only occasionally ; the great point is to relieve habitual strain and high pressure.

But while the customary amount of exertion at the menstrual periods may not be harmful, it is not the time to undertake any extra effort, whether mental or physical. On the contrary, the customary burden should, if possible, be lightened. Most girls can calculate the time of the next period with sufficient accuracy to avoid making engagements that will involve over fatigue or excitement, and if they cannot do so, or claims turn up unexpectedly, they ought to be postponed. Girls who lead leisure lives ought to lie down for an hour or two in the afternoon and take a nap, if they can. A girl who is working for herself, cannot often do this, but if she will go to bed an hour or two earlier than usual while menstruation lasts, it will do nearly as well. Violent or prolonged exertion is always objectionable. Athletic sports had better be given up, especially hockey and basket-ball. There are some strong, vigorous girls who can keep up these amusements without suffering from doing so, but not many of them are equal to such a practice, and no matter how strong a girl is, she ought not to play in a match game, not only because the physical exertion is too great, but because the excitement and nervous strain involved in the competition are the most injurious things she can possibly endure.

I repeat that the essential thing in the hygiene of

the menstrual period is that the burden of life, whether in mental or physical relations, shall be lightened in one way or another, especially during the earlier part of the time. On the principle that everyone knows where his own shoe pinches, each girl can decide better than anyone else can for her, just what particular pursuit tries or fatigues her most. Whatever this pursuit may be, it is what should be given up or modified for the time being.

One curious fact in regard to this matter is that girls who are ready to believe and acquiesce in the necessity for bodily rest and relief are often hard to convince as to the need for mental relaxation. The idea that concessions should be made from the mental side is apparently hard to instill; nevertheless, it is most important that it should be acquired, for not only does health suffer in the long run from mental strain and effort during menstruation, but mental work does. The majority of girls will find that the effect of menstruation is apt to show in their work, even when they are free from suffering or marked discomfort and a candid girl will admit the fact. The memory is not quite so good, the judgment is disturbed in its balance, the temper is a trifle irritable, the emotions less under control. All these things point plainly to the necessity for care, and experience has shown that if allowance is not made in these things, they will grow and increase as the years go on, until the discomforts

which seem so trifling at first become a serious burden.

Protection from weather and from changes of temperature while menstruation lasts is important, for any sudden chill to the surface is liable to check the flow, and the suppression may be accompanied by a great deal of suffering at the time, to say nothing of possible bad effects in the future. Little risks in the way of insufficient clothing or exposure, which, under ordinary circumstances may be allowable, for sufficient reason, ought not to be taken at this time; in particular no one should ever sit with wet feet or wet clothing.

There was an old-fashioned idea that a cold bath must never be taken during the menstrual period, because it would check the flow and cause suppression with all its attendant evils; but the belief is entirely a mistaken one. There is certainly danger in prolonged exposure to cold or damp, but the brisk reaction following a cold bath, properly taken, prevents any danger. A plunge into a tub full of cold water is not always safe, though many girls take such baths without the slightest ill effects; but a cold sponge bath followed by friction with a coarse towel, in the manner described elsewhere, can be taken by any one. Sometimes, however, a daily warm bath is more acceptable and relieves discomfort more than a cold sponge. At least twice a day the parts exposed to the menstrual discharge ought to be washed with warm water and soap, and as soon as the function is over

a full tub bath of warm water ought always to be taken.

Many women are in the habit of using a vaginal douche after menstruation ceases, but it is a mistake to teach young girls to do so. It is not at all necessary, for external cleanliness can be maintained without it and the interior of the vagina will take care of itself. To introduce anything, no matter how carefully, into the vagina is undesirable, for the membrane at the entrance is liable to be injured or stretched in doing so.

The diet during menstruation should be simple and unstimulating. Any kind of food that is suitable at other times is suitable then. It would not be worth while to mention the subject, were it not that there are various fanciful ideas abroad as to the effect of certain articles of food upon the function. There is no evidence whatever to support these theories. Some girls suffer from indigestion during menstruation and when this happens, the diet must of course be adapted to the necessities of the case.

Finally, one most important point in the care of the health during the menstrual period is, regulation of the bowels. A great deal of discomfort and even actual suffering arises from constipation at such times, and if the bowels are not kept open, comfort during menstruation cannot be expected. Sometimes a full dose of some saline laxative such as Hunyadi Janos or

Apenta water, taken just before menstruation is due, or if that is impossible, immediately upon its appearance, will relieve discomfort or pain altogether.

II

We must now proceed to consider the various ways in which the menstrual function can depart from normal and the effects of such departure. The most common of all such disturbances is the presence of the condition known as *dysmenorrhea*, or painful menstruation. It is not altogether easy, however, to say exactly what constitutes dysmenorrhea. If the menstrual function took place in general without any pain whatever, the presence of suffering in any degree would make the necessary distinction; but, as a certain amount of pain seems to be natural and inevitable under our present conditions of life in most cases, the definition must rest upon some other basis. It has been proposed to consider dysmenorrhea present whenever the suffering is so severe as to keep a girl in bed, but this is a most misleading distinction. A girl who has nothing to do but to consider her own comfort, will stay in bed, when another who must work for her living or provide for the comfort of others, will manage to keep up and about, though she is suffering quite as much or more. Again, an indolent fanciful girl, who rather enjoys being an invalid, will yield to a comparative trifling amount of pain, which a sensible

determined girl who dislikes sickness, will disregard. Of course no doubt exists in cases where the pain is severe and prolonged; in other, more doubtful cases, the only way is to consider all the circumstances in each instance and form an opinion upon the merits of the case.

The first thing to be understood about dysmenorrhea is that it does not necessarily indicate the presence of any disease or displacement in the uterus or ovaries. In fact, the number of cases of dysmenorrhea in which such disease is present is comparatively small. Of one thousand patients treated at the Johns Hopkins Hospital for dysmenorrhea, only a little over a quarter had any actual disease or displacement. Moreover, not only can menstruation be accompanied by the most extreme suffering without the presence of any abnormal condition of the organs concerned, but advanced disease or marked displacement can exist without the presence of any menstrual suffering whatever. The more we learn, in fact, about menstruation the more plainly do we see that the suffering associated with it is an expression of nervous irritability excited by the presence of ovulation. Its presence or absence, therefore, depends, not upon the condition of the organs themselves, but upon the condition of the central nervous system.

There are two distinct types of menstrual pain. One of them, which is the commoner of the two, is a

sharp, cramp-like pain in the lower abdomen, coming on in paroxysms, which last for a minute or two and then subside, to return after a brief interval. This form of pain begins as soon as menstruation appears, or else just before it does so, and subsides gradually as the flow becomes fully established, disappearing altogether in the course of a few hours or, at most, by the end of the first day. In the other variety of dysmenorrhea, the pain is of a dull, diffused nature, spreading out through the back and down the thighs. It begins, as a rule, a day or two before menstruation and lasts all through the period, not being relieved by the establishment of the flow to the same extent as the other variety. Sometimes both kinds of suffering occur in the same case, the spasmodic form being added, as it were, to the duller one. Both of them are apt to be accompanied by nervous manifestations of different kinds, which show how greatly the nervous system is involved. Headache is the commonest of the nervous symptoms, and also languor, with exhaustion and depression of spirits or else nervous irritability.

But, in addition to these symptoms which have come to be accepted as characteristic, there is hardly an organ or function of the body which is not sometimes affected by menstruation. Nausea and vomiting are not at all uncommon, as well as pain in the joints, resembling rheumatism or gout. Attacks of sick

headache, if they are constitutional, are apt to occur at this time. The eyesight is often temporarily affected, and eruptions of the skin are quite common. In short, there is no part or organ of the body which is not sometimes affected by the central disturbance that accompanies the periodical return of the reproductive function and the process of ovulation in which the latter culminates.

The point of most importance in dysmenorrhea, of course, is the question of its relief, both temporarily and permanently, and this involves another question also of importance, namely, whether local treatment by a specialist is necessary to that end. I may say here once and for all, that in the case of a young girl local treatment is hardly ever necessary and that every expedient for relief ought to be tried before having recourse to it. This is a point which cannot be too strongly emphasized. We know that the condition of the nervous system is the essential factor in dysmenorrhea, and we know that the condition can exist in the most severe form without any disease or displacement whatever. Therefore, it is certainly only reasonable that every other means of relief should be tried before resorting to one which is open to serious objections.

Of all the various measures of relieving dysmenorrhea at the command of the patient herself or her friends, by far the most important is *rest*. It is just

as important that a girl who suffers from painful menstruation should remain in bed during part, at least, of the period, as that a healthy one, with no more than trivial discomfort, should not.

Every case of dysmenorrhea ought to be kept in bed as long as the pain continues, whether it is only twenty-four hours or a week. It is a good thing to begin to rest, whenever possible, a little before the flow appears. No employment, except the lightest kind of reading, should be allowed.

If the general health is at all poor, and it often is, everything should be done to build it up, with fresh air, exercise, tonics, and all the various measures that good sense can suggest. Sometimes the appetite is so poor that a girl really cannot eat enough at her regular meals for her needs, and when this happens she ought to have something light and nourishing, such as a glass of milk or some bouillon between them, as well as on going to bed at night. Abundance of sleep is really the most important remedy, next to rest at the periods. A girl suffering from dysmenorrhea ought never to be out of bed later than nine o'clock, unless she takes a long nap in the afternoon. During the regular rest at the periods she ought to sleep all that she possibly can. Late hours and excitement must be carefully avoided. A school girl with dysmenorrhea should never be sent to school during the period, or if the period is a long one and the pain does not last all

through it, not for the first three days; neither should she be allowed, far less encouraged, to undertake anything in connection with her studies which involves her in competitive efforts.

The bowels should be open, and at the time of the periods they should be a little relaxed. This is a point of the greatest importance. Many young girls are extremely careless in regard to the condition of the bowels and will often declare that they have no trouble at all in this respect, when they are really suffering severely from constipation, not because they intend to deceive, but because they are so ignorant and careless that they really do not know what the true state of things is. Change of climate often has a great effect upon dysmenorrhea through its effect upon the nervous system.

If the regimen prescribed is faithfully kept up, particularly the rest in bed, for some months or a year, there will, in many cases, be a most marked improvement, and in not a few, complete recovery. It may be necessary, however, to keep up the rest part of the treatment even after the suffering is relieved, because its abandonment is followed by a return of the pain.

The question of temporary relief while the more permanent treatment is being carried out deserves a word or two. Heat, applied both externally and internally, is the surest means of relieving the pain. Hot water-bags, or hot sand-bags applied over the seat

of pain is the best external means. Another excellent remedy, which combines heat and counter-irritation, is a mustard plaster over the lower abdomen. A hot mustard foot-bath often does good, especially when there is much headache. It should be made with two teaspoonsful of mustard to a tub-full of water as hot as can be borne, and more hot water should be added from time to time when the temperature of the water begins to go down.

Hot drinks often give relief. Tea and coffee, which had better not be used habitually in girlhood, are sometimes a great resource at these times, for the combination of heat and mild stimulation does a great deal of good to a person not accustomed to them. Alcoholic stimulants must never be taken except at the doctor's advice. There is a common impression, especially among uneducated persons, that hot whisky and water or hot gin and water, particularly the latter, are the best possible remedies, but the idea ought to be systematically discouraged. To use alcohol for the relief of any pain that returns at stated intervals, is never without risk.

There are hardly any medicines which ought to be taken without a physician's order. *Opium, in particular, must never be used in any form unless so ordered.* If a girl is suffering sufficiently to require opium, she is suffering severely enough to need a doctor, and he can take the responsibility of giving it. The use of

patent remedies whose contents are unknown is objectionable, because a great many of them contain alcohol, opium, or cocain. Bromide of potash is almost the only thing which can safely be used without a doctor's advice. It may be taken in powders of twenty grains each, dissolved in hot water and repeated in two hours. Sometimes it gives considerable relief, especially where there is much headache and nervous excitability. The compound mixture of helonin, commonly known as "green mixture" from its color, may also be taken in doses of half a teaspoonful in hot water.

If rest and hygienic measures are tried for some time without relief, it is a question whether to go on longer or to seek the advice of a specialist. It is just as foolish and wrong to defer this measure from procrastination or false modesty as to rush into it unnecessarily. Each case must be considered in all possible lights before a decision is reached. The main points to be considered are whether the suffering increases with each period, whether there is any pain between the periods, and whether the general health is becoming depreciated. If these points are all present, particularly if the pain is not confined to the periods but is more or less present all the time, the possibility of some local trouble is greater than if they are not. Another point that bears upon the question is the presence of a whitish or yellowish discharge from the

vagina during the intervals between the periods, which is always a symptom of importance.

If then the case, judged by these indications, is growing no better, or if circumstances make invalidism at regularly recurring intervals impossible, active measures had better be taken. The best plan is to consult a specialist at once, if possible. A general practitioner should not, at any rate, be allowed to make a local examination, for it is impossible to feel secure unless it is done by a specialist, and if he is to be resorted to in the end, there is no use in taking an inefficient measure in the beginning. It may not be inappropriate to say a word here as to the choice of a specialist.

To be guided in the selection by nothing better than the advice of friends, each of whom wants to recommend someone for whom she has a preference, is a great mistake. The advice of the family doctor can generally be relied upon, and if this is not available or reliable, it is best to find out the name of some man associated with a good medical school, which can always be done by a little inquiry, and consult him. In small places, where there are no medical schools, of course this plan cannot be adopted, but it is better to come to a larger place. A little trouble, effort, and money are well expended in doing so.

Amenorrhœa, or deficiency of menstruation, is the name given to a diminution of the function, whether

it takes the form of occurring too seldom, of lasting too short a time, or being insufficient in amount. When menstruation stops altogether for some months or even years the amenorrhea is spoken of as *total* or *complete*; when it appears irregularly or when it decreases without ceasing altogether, the condition is called *partial* amenorrhea.

Amenorrhea in young girls proceeds usually from a failure of the general health, and occasionally it is the result of nervous influences. In acute diseases, such as eruptive fevers, or pneumonia, or typhoid, menstruation is often, though not always absent. In chronic ailments it is almost always reduced in amount or frequency, but does not so often cease altogether. In all these conditions the deficiency is a conservative process on the part of nature, which is making an effort to save the strength.

One condition in which there is a direct connection between amenorrhea and the reproductive organs which requires special mention is the disease known as *chlorosis*, in which the red cells of blood, which carry oxygen to the tissues, become so affected that their capacity to carry oxygen is much reduced though their number is not lessened. The cause of chlorosis is not yet understood, but we know it is frequently connected with the development of the uterus and ovaries, or rather with their want of development, for when it exists, these organs are almost

always small and immature. The complexion in chlorosis is not only pale, as it is in simple poverty of the blood, but it has the peculiar greenish tinge which has given the disease its name. The general health is always more or less affected, the particular disturbance being different in different cases; sometimes it shows itself more in the digestion, sometimes in disturbance of the heart's action. Menstruation is not often absent altogether, but it is always decreased in one way or another and sometimes it fails to appear until some years after it should do so. The girl herself and her relatives are apt to be alarmed by the decrease, but there is no reason why they should be; it is a characteristic symptom of the condition, arising from the undeveloped state of the reproductive organs, and it will disappear when they attain their full growth and development.

One thing that must always be remembered in the case of a girl with chlorosis, is that though fresh air is the most important factor in her recovery, exercise is not desirable, partly because the action of the heart is sometimes disturbed and partly because it has been shown that the blood becomes poorer during exertion and richer during rest. Therefore a patient ought to sit or lie out of doors as much as possible, but she must walk very little.

Amenorrhœa is almost always present in the early stages of tuberculosis of the lungs; in fact, it is one

of the first symptoms of the disease. This fact is generally recognized, but the reason for it is misunderstood. There is a common impression that the suppression of menstruation is the cause of the disease in the lungs, and that if the function can only be re-established, the lung trouble will disappear. Nothing can be more mistaken; the amenorrhea here, as in all the other chronic conditions, is the result of nature's impulse towards saving the system a loss which it is not in a condition to bear. Any attempt to bring on the function, therefore, is more likely to do harm than good, even if it succeeds, which is not likely.

The influence of the nervous system in causing amenorrhea is extremely marked; in fact it is one among various reasons for believing menstruation to be under the direct control of the nervous system. Sudden grief, violent excitement, or emotion of any kind experienced during a period, will cause menstruation to stop suddenly, not to return, perhaps, for months. Change of climate is often accompanied by marked disturbance, a change to the seashore being usually followed by a tendency to excess, while change to the mountains is attended by a tendency to diminution. These disturbances can be partly accounted for by the effect of barometric pressure at different altitudes upon the pressure in the blood vessels, but the fact that the same results often follow a change of a few miles, shows that nervous influences must be

involved as well as the atmospheric condition. The great English specialist in women's diseases, Dr. Tilt, was once consulted by a lady who had recently opened a large boarding school for girls near London, because so many of her girls suffered from amenorrhea during their first year at school, that she thought there must be something unhealthy in the situation. Such cases, however, are well known to any physician of large experience.

Amenorrhea seldom or never requires direct treatment, especially in young girls. As said before, it is nature's way of protecting the individual from a loss which, for one reason or another, she is not in a condition to bear. The flow to which the system is accustomed in health, becomes a drain when the health is impaired. The only measures of relief that are necessary or desirable are those that restore the general health or assist recovery from acute or chronic ailments upon which the amenorrhea depends. *On no account whatever should any medicines be taken internally, with the object of bringing on or increasing the flow.* It is extremely doubtful whether such remedies succeed in the purpose for which they are taken and they may do a great deal of harm. The family physician ought to be consulted with reference to the general health, but, unless he himself suggests it, the advice of a specialist is not necessary or desirable. No medicines ought to be given without his sanction

except, perhaps, iron or cod-liver oil. Fresh air, sleep, nourishing food and a healthy life are imperative and especial care must be taken to **keep** the bowels open, for amenorrhea and constipation go hand-in-hand. With the return of health, menstruation will reappear, and if health does not return, it is not to be desired that menstruation should.

It sometimes happens that exposure to cold and wet during a menstrual period will cause a chill that stops the flow altogether, and this kind of suppression may be accompanied by acute pain in the lower abdomen, and headache. When this occurs, the girl should have a hot tub or hip bath and then be put to bed, warmly covered up, with hot water bags around her and some kind of hot application over the lower part of the abdomen. A hot drink is often useful.

Increase of menstruation, whether of amount, of duration, or of frequency is called *menorrhagia*. Like amenorrhea or dysmenorrhea it is frequently the result of general causes, but the possibility of local trouble in the organs concerned is rather greater than with the other disturbances of menstruation. The more serious of the conditions causing it do not exist however, in young girls, or only in rare instances. It is important to remember that menorrhagia is more important than amenorrhea or dysmenorrhea, from its own nature, irrespective of any condition behind it. There is a disposition among women to think that any

irregularity in menstruation must be of consequence, solely because it is a disturbance of established custom. This state of mind is largely the result of the old idea just now mentioned, which attached far too much importance to the possibilities of trouble associated with women's reproductive organs. But it only requires a moment's thought to see that any increase of the habitual loss must be of more consequence to health than a decrease, or even than marked suffering in connection with it. Menorrhagia cannot occur without depreciating the general condition more or less, no matter whether there is any local trouble behind it or not; and if this loss is continued for any length of time, the ill effects will be serious as regards health. I emphasize these facts because the lack of discrimination between the importance of the menorrhagia and other disturbances of menstruation is sometimes the cause of a good deal of harm.

Any marked increase, whether by amount, duration, or shortening of the interval between the periods ought to receive attention and be brought to the physician's notice, but if the increase is very slight or gradual, it may escape attention altogether, and even if he inquires in regard to the subject he may be misled, because the patient is under a wrong impression herself. In any case where a girl's health fails without any assignable reason, and all the usual means of building it up fail, there is always a possibility that she is suf-

fering from menorrhagia, so slight in amount or gradual in its onset that it is unsuspected by herself or anyone else. It is always worth while in such a case to watch closely for several periods.

Another point of importance in menorrhagia is that the extent of the hemorrhage bears no relation whatever to the extent of the condition causing it. The most profuse hemorrhage may, and frequently does, proceed from some exceedingly simple local cause, or from disturbances of the general health, without any local trouble whatever.

In forming an opinion as to whether menstruation is in excess or not, it must always be borne in mind that the question is comparative rather than a positive one. An amount of flow which is normal in a robust full-blooded girl is excessive in a slight delicate one, with no blood to spare. But no girl, no matter how strong she may be, can stand an increase in the amount habitual to her, even though the increase is quite small, if it keeps up for several successive periods. It is one of the most effectual means in the world of breaking down the general health.

In young girls menorrhagia usually proceeds from one of three causes. First, a failure of general health, which instead of being accompanied, as it commonly is, by a decrease of menstruation, results in an increase. It is a curious fact that in poverty of the blood, just when it is so important that every drop

of it should be saved, there is a tendency to loss on every possible occasion, because its excessive thinness causes it to flow with unusual ease. Bleeding from the nose is quite common during anemia and the amount of the flow during menstruation may be increased. The next cause, which is present only during the years just after menstruation is established, is a slow and imperfect development of the blood vessels in the uterus. This, of course, passes away as soon as full development is reached. The third cause is a thickening and roughening of the mucous membrane lining the uterus. This condition may occur in any organ with a mucous lining, but in the uterus the regular recurrence of hemorrhage gives it more importance than it possesses elsewhere, for it tends to increase the amount of the flow. Fortunately it is easily relieved by a simple form of treatment.

The treatment of menorrhagia is somewhat like that of dysmenorrhea, though it stands on a different basis. In both classes of cases *rest* is the sheet anchor, but in menorrhagia its object is not so much to relieve the nervous system, as to keep the patient in the recumbent position, which usually tends to reduce the flow. Any girl suffering from excessive menstruation ought to stay in bed for the whole of the period, if possible, and at any rate for the first two days of it. In girls who are in the habit of taking a great deal of active exercise, menorrhagia is often benefited by a mod-

ified rest for several days before the period is due, that is by refraining from long walks, or playing tennis, golf, or any form of active exercise, and by lying down for a few hours each day.

In acute diseases, menstruation is usually partially or completely suppressed. But occasionally it is affected in the opposite manner, especially in the eruptive fevers, such as scarlet fever, measles and the like. These disturbances are not commonly of consequence, unless the hemorrhage should be excessive enough to be alarming, which is very unusual; but the belief is now growing among physicians that chronic inflammation of the uterus or ovaries, which gives much trouble in later life, sometimes has its starting point in the acute diseases occurring during childhood or early girlhood. For this reason it is most important to watch carefully for a symptom which might indicate the possibility of these organs being affected, the sign of it being either excessive menstruation or the appearance of a discharge from the vagina. Whenever in the course of an acute disease, such symptoms appear, the attention of the doctor should be called to it at once, in order that he may take precautionary measures.

Before concluding this chapter it seems best to emphasize the more important points concerning menstruation, even at the risk of repetition, for the function is of vital importance in a woman's life, and

much of a girl's health and happiness depend upon a knowledge of them.

We know that the function of menstruation is under the influence of the nervous system and that the discomfort and suffering which may accompany it even in the healthiest girls, are almost always due to disturbance of the nervous system, not to disease or displacement of the organs concerned. All investigations into the question of women's diseases and the function of menstruation, made within the last few years, show this fact more and more convincingly. Such investigations also show that irregularities in occurrence or amount are generally the result of failure of the general health. Deficiency of menstruation is, therefore, a saving process for which there is reason to be thankful. Increase in menstruation is more serious than either of the other conditions, not because it arises from graver causes, for in young girls it very rarely does, but because it exhausts the strength and injures the general health.

If these particular points are once fully understood, common sense shows that the means of dealing with them lies in the hands of girls themselves and still more of their mothers. The measures at command are based upon four essentials: *Rest, healthy conditions of life, patience, and time.* If these measures are given a fair trial for a reasonable length of time, everything requisite to restoration of health is done.

The majority of cases will recover without any necessity for active treatment, and this being the case it is a positive duty to exhaust their resources before taking a young girl to a specialist's office.

CHAPTER VI

SEXUAL KNOWLEDGE

Evils of present manner of treating sexual matters in education — False point of view as a cause of these evils — Benefit of frankness — Necessity for confidence between mother and daughter — Method of instruction through study of reproductive function in animals and plants — Question of such instruction in schools — Benefit of such instruction in the protection of working girls.

ONE of the healthy signs of the times is a growing dissatisfaction with the manner in which the facts of reproduction and allied questions of sex are now treated in the education of the young. Up to this time the *laissez faire* doctrine, which left information on such subjects to chance, has been accepted without criticism; but within recent years many thoughtful persons, who realize that the let-alone method in their own case left much to be desired, or, perhaps, it would be more correct to say, much to be regretted, are beginning to perceive the evils of such a policy and to ask themselves what is really the right line of conduct.

The let-alone method arose partly from indolence and carelessness, together with that strange reserve which instinct seems to erect between parent and child

on matters related to sex. But in the case of girls at any rate, it contained also a certain element of deliberation, based upon the idea that if a girl was kept in complete ignorance of all matters related to sex, she remained innocent of evil, while, on the other hand, such a knowledge might make her less modest or else be an offense to her modesty.

But innocence does not depend upon ignorance of sexual things, nor even upon ignorance of evil; it is a quality inherent in all healthy young minds, and if it is sullied or lost through a knowledge of sexual matters it is because these facts are not presented as they should be,—with simple directness as part of nature's scheme of life. The same argument applies to the other objections cited as well, for there is certainly nothing in a knowledge of the natural laws relating to reproduction which can injure a girl's modesty or offend it.

But even if it were desirable to keep a girl wholly ignorant of sexual matters up to adult life and marriage, it is impossible to do so, except in very rare cases. No girl can reach puberty without observing facts connected with reproduction, even if she is fortunate enough to escape more direct information from her associates. The problem before us to-day is not whether a girl shall or shall not be ignorant of sexual things, but whether her knowledge of them shall come from a right or a wrong source. Yet so little is this

aspect of the case recognized that many mothers do not speak to their daughters upon such subjects, and others use every effort in their power to guard them rigorously from any knowledge of the most important function in their being.

Unfortunately this negative attitude on the part of mothers is anything but negative in its results upon the daughter. Under the present conditions of life, at any rate in this country, a girl's mind cannot remain empty as regards sexual things. She reads the daily papers, she overhears the conversation of her elders, she associates with schoolmates more mature than herself, and she takes a burning interest in the latest additions to her own family or those of her friends. It is but natural that if her mother never alludes to the subject or turns a deaf ear to inquiry, she should seek information from some other source, which may not be actually harmful, but is never what it ought to be.

For — and this is a point not sufficiently appreciated — no suitable source of information is open to a girl if her mother fails her. No older girl or woman with right instincts or good principles will discuss matters of sex with a little girl if her mother has not seen fit to do so. Even if the mother's course seems mistaken to her relatives or intimate friends, they will rarely feel justified in acting contrary to it. Consequently the girl whose mother keeps silence, whether from indifference or intention, has no source of knowl-

edge better than her schoolmates and girl friends, whose information at best is "either bare-faced or shame-faced," and generally inaccurate. Or, worse still, she falls into the hands of servants whose point of view can hardly fail to be coarse and may be really vicious. As a recent writer on the subject remarks: "The so-called delicacy of discussion is a veritable Minotaur that exacts a yearly tribute in the shape of boys and maidens."

Another bad result of mystery and repression is that girls come to regard it as the natural attitude of mothers on such matters, and to feel themselves justified in evading it, because everyone else does so. Can anything be more pitiful, or more cruel to both parties? A girl's mind at this period is at its most plastic and receptive stage and just at this point, when pure and noble ideas upon sexual things are most easily inspired, she is cut off from the source through which all impressions of this kind would naturally come, and is fortunate if she escape having her innocent mind filled with coarse associations which can never, perhaps, be wholly eradicated.

But many a conscientious mother adheres to this repression policy because she honestly believes that the subject of reproduction and everything related to it should be avoided by a modest woman, except under the most stringent necessity. Therefore, she is only doing her duty, as she conceives it, by seeking to give

her daughter the same impression through her own avoidance of the topic. And this attitude, unfortunately, is one which, to a large extent, has the sanction of public opinion.

All this trouble arises from the fact that the whole subject stands at present in a false light. There is no indelicacy in the facts of reproduction themselves nor in the natural laws associated with them; it is we who have created an artificial atmosphere of indelicacy by surrounding such subjects with mystery and putting a *taboo* upon all allusion to them. Not, of course, that matters of sex are suitable for general conversation or comment. On the contrary, their constant presence in newspapers, advertisements, cheap literature, and other public places is one of the odious defects of the age. The trouble is that we confound secrecy and reserve, which are wholly different things. There can hardly be too much reserve upon all matters relating to the question of sex, for reserve implies a dignified reticence that discusses certain subjects only upon fitting occasions and then, when frankness is called for, speaks with perfect openness. The quality of reserve as thus defined, outlines the attitude suitable to all the intimate relations of life, and especially to those of sex, which are associated with the finest instincts of our nature and the nearest of all human relationships. To every healthy-minded girl whose impulses are pure and good this attitude will come

instinctively, if her thoughts are not soiled and perverted by other and lower views, presented to her before she fully understands what the subject means.

A certain proportion of parents who realize that they have a duty to their children as regards their knowledge of sexual matters, adopt a system of treating the subject which is certainly more to be respected than the *laissez faire* method, though it is not by any means all that it should be. This plan, which has the support and sanction of some careful mothers, is to let a girl grow up in ignorance of all matters connected with the function of reproduction (so far as her mother is concerned) until she reaches puberty, and then, about that time, to explain the subject to her more or less fully according to the mother's judgment.

The success of this scheme rests upon the mother's assumption that no hint of the subject will reach her daughter's ears before the time when she intends it to do so, and this state of things, as we have seen, is almost an impossibility. A mother often makes the mistake of thinking that because a daughter as she approaches womanhood says nothing to her regarding matters of sex, she knows nothing of them, which is a fatal error. This is the age when girls begin to be reticent about everything, as we saw in a previous chapter, and that reticence is apt to be fostered as regards sex matters, because if the mother has fixed

a definite time in which to speak herself she will almost always repress any questions addressed to her before that time arrives. Any mother who believes her daughter's silence to be a sign of ignorance and is surprised when she approaches the subject to find the contrary, will be able to recall, if she tries, questions evaded by her some years earlier.

A child who has been rebuffed on such matters will no longer let her mother see what is passing in her mind in regard to it, not so much from deliberate concealment, as because she has learned that her mother does not wish to be approached in regard to it.

The plan of taking up sex-instruction at a definite time answers in some cases. I know of one instance where it was a signal success, but in this case the circumstances were such that the daughters could be most carefully guarded, and the mother was a woman with remarkable powers of insight and influence. Such cases as this are in a very small minority. In most instances, a girl, so far as her early years are concerned, is exposed to all the evils of the let-alone system, and when childhood is over and the mother expects to guide her daughter's mind along lines which she has planned, she finds it impossible to do so, by reason of impressions already received. This system will always be a failure except in the rarest cases, because entire confidence between mother and child can hardly ever exist under it, and it is in this confidence

that the solution of the sex-problem from an educational point of view must lie. Not confidence established at a special time for a special purpose, but a confidence existing from babyhood and bringing the child into the same relations of sympathy and openness in matters of sex that should exist between her and her mother in all respects. A mother cannot step into this relation at a time fixed by herself, no matter how judicious her selection of the time may be. More than this she must accept the fact that the time for explanation is a matter of opportunity, not of choice, and be ready to set aside all pet theories and nicely adjusted plans, even to sacrifice what may seem to her a really important issue to keep the one thing needful — confidence.

The questions asked by very little children, such as "Who made me?" or "Where did the baby come from?" are probably best met by some evasion, such as the fable of the stork. In early childhood there is no danger of checking confidence by such an answer, for it is no more possible to answer questions of this kind than hosts of others on all possible subjects propounded at this time, and the child does not feel herself any more rebuffed than she does in many other cases. When she grows older and approaches the problem with more developed intelligence, the stork will go into the same category as Santa Claus and other childish delusions. It is at about six or seven,

when infancy ends and childhood begins, that the difficulty appears, partly because the intelligence is keener and partly because the child begins to go to school. At this time she will perceive that her questions on matters related to reproduction and kindred subjects are put aside, while her questions on all other subjects are met with more or less effort at response, and want of confidence begins to creep in. From this time on, evasions are of all things to be avoided and if the old ones, such as the stork, are recalled and presented for explanation, it is best to admit frankly that they were evasions, made use of because a baby could not understand the real answer. No child of six or seven ever resents or is repressed by such an admission, for nothing gives such a delightful sense of superiority as the comparison with a younger self. The danger with evasions at the later stage is that the questions for which they are employed will certainly crop up again, and then the child will be shrewd enough to guess that they were employed, not because she could not understand, as in the case of the early ones, but because it was not intended that she should, and if she draws the further conclusion that she will not be any more successful next time she will probably seek information elsewhere.

At this age a child's inquiries ought to be met as fully as her intelligence will permit. It may be objected that the intelligence of the period does not allow

explanation of any great fullness. But the really important point is not so much to impart information as to make the child feel that she is treated with as much frankness as her age admits, and that when she is older and wiser her further inquiries will meet with the same treatment. The hardest part of this plan is that the mother must be prepared to find, at any moment, that the matter has, on some point, been taken out of her hands, because the child has heard or seen something which obliges her to go farther in information than is desirable for the child's age. The temptation to evade under these circumstances is very great, but it is a fatal error to yield, for the girl's essential belief in her mother's frankness and willingness to explain will certainly be shaken when she finds out the subterfuge, and this is a false step which can never be regained. In such a case as this the mother can, at any rate, take comfort in the conviction that she controls the situation by meeting it openly; whereas if she finds some other way out, it will get the better of her.

This particular point is so important that I should like to illustrate it by means of a little incident told me by a friend.

My friend's little girl came to her when she was about ten years old in great perturbation because one of her companions, a girl somewhat older than herself, had shattered her belief in the mission of the stork,

in which up to that moment she had firmly believed. Her mother hesitated for a moment, and in that moment, with the child's eyes fixed upon her face, she took thought and made her decision. It had been her intention to speak upon the subject a few years later, and she regretted extremely that her hand should be forced. There was no difficulty in evading the subject at the moment for the child trusted her absolutely, and would have accepted any one of the customary subterfuges without suspicion. But with this thought came the reflection that the matter might be revived in the child's mind at any moment by suggestion from some other quarter, and then the recollection of her own avoidance of it would check the confidence she aimed to establish. So, believing that she chose the better part, she gave an explanation sufficient to meet the situation for the time being, feeling sure that when further questions suggested themselves or were suggested, they would be brought to her as readily as this one had been. The child's comment showed how true her mother's instinct had been, for when the latter ended by saying that she had intended to explain the subject to her when she was a little older, she said: "I don't think that girl ought to have told me. You are the person who ought to tell me; you are my mother."

I have sometimes heard expressions of surprise, that this particular woman should possess the confidence

of her daughters in a remarkable degree, while other mothers, who gave all questions of education far more consideration, were less successful in this respect, and whenever this happens I recall this little incident.

One objection often urged by mothers against the policy of entire frankness is the difficulty of handling such subjects, since certain aspects of the sex question are unsuitable to a child's mind, even with the most cautious and delicate treatment. With some persons the personal element seems to be a great obstacle. But this difficulty arises from the fact that the most people look upon all questions of sex from the human point of view alone, or at any rate from the point of view of the higher animals. The solution of it lies in taking up the subject from the other end of the scale of life and opening the child's mind to the fact of reproduction in all animal life and vegetable life, accustoming her in this way to look upon it as a natural law, present all through the universe. A child of nine or ten can understand the process of cell division, as it takes place in low forms of life, and see how it results in a new individual. She can also appreciate the fact that reproduction in human beings is a further stage of the same process, too complicated for her to understand as yet, just as she appreciates that there are degrees of knowledge in everything. Such a plan brings the subject before her in a pure and natural light; it shows her that it is a law of

nature with no more mystery about it than other natural laws; and it prepares her mind for a right estimation of its relations to life as a whole, when she is old enough to meet them.

But the study of life in all its forms has only been recognized within the last half century and the adaptation to youthful minds is even more recent, so that its usefulness as a means of education in sexual things is not yet generally recognized. Every year however, makes it more plain that instruction along these lines is the solution of the sex problem from an educational point of view, and the greatest service which can be rendered to this cause at present is to assist in bringing it into general acceptance.

If it is objected that not many parents have the training necessary to instruction of the kind requisite, the answer is that the requirements for it are really very simple. A special education in botany and zoölogy is most useful when it is at command, but it is not at all essential. Any mother who has gone through the public schools, whether their course included any training in natural history or not, can easily acquire a sufficient knowledge for her purpose from elementary books on these matters. A scheme of such instruction is given in the last chapter, but there are variations upon it which might be employed with advantage in special circumstances. A microscope and a knowledge of its use, or even a magnify-

ing glass, is a great help and interest, but not an essential. No knowledge of drawing in an artistic sense is necessary, for anyone can learn what is needful for this special purpose. Under any circumstances there are the illustrations in books.

But in many cases it is possible to arrange for a course in elementary biology from a regular teacher, in which the reproductive functions are considered in connection with all the others, for several children together, and if the mothers are present at the same time, so as to know exactly what facts are presented to their children, they will be able to make use of what has been learned in their own talks with their children on sex matters.

It has been suggested that graded courses of instruction in biology, with this particular point especially in view, shall be made a part of the work in the public schools, the lessons concluding by a series of talks to the older pupils on the function of reproduction and kindred subjects from the human side, and the questions of health associated with it. The advantage of such a plan is that the child can have instruction from a more highly trained source than is otherwise possible in most cases. She can also enjoy the use of apparatus and appliances which few homes can command and she can observe many more forms of life. Moreover, it provides for children, especially those of foreign parentage, whose mothers have not enough educa-

tion to attempt any instruction of this kind. The plan has been tried in a few places and the results, so far as they go, are most encouraging.

The only objection to the scheme is that instruction in matters of sex is undoubtedly the duty of the parents, and if the responsibility of it is accepted by the school the parents will come to regard it as no business of theirs, just as they are too apt to do with other matters of education, and thus be separated from the children in a matter, where, I repeat, confidence is above all things essential. If the system of school instruction will really produce such a result as this, it had better be given up, for no benefit to be gained from it will counterbalance such an evil. But why should the evil arise? There is no reason whatever why it should do so. In any case such a measure is only a temporary resource, for if the present generation of pupils in the public schools are well grounded in the necessary knowledge, they will have it in their power to teach their children themselves, and in the next generation, if it is desirable, the course can be dropped from the curriculum. But there is no reason why, if technical instruction is introduced into the public schools and the parents will take pains to keep in touch with it and make use of the facts thus acquired in their closer and more personal teaching, all things should not work together for good. It is all-important that this aspect of the question should

be clearly understood in the beginning, and when the system is introduced into the schools of any particular place every effort ought to be made to initiate the parents into its purpose and secure their sympathy and support.

Yet when all is said and done, school instruction, no matter how good, can never take the place of a mother's influence in such matters. The closer, more intimate, personal side of the subject can only be supplied in its best sense by a mother. No teacher, no matter how well informed or sympathetic she may be, can fill a mother's place, and any outside influence, if it is to do good, must work with her; otherwise it makes for evil. That a mother's capacity to help her daughter does not depend upon intelligence nor education, is shown by the fact that workers among the poor in New York, say that the girls among the very poorest class upon the East Side are better protected against evil when working for themselves by their mother's teaching than those of the class above them, where there is more education.

This matter of the protection of working girls touches another aspect of the sex question which is of vital importance. It may seem a paradox to speak on one page of the harm done by the let-alone system giving a precocious knowledge of sexual things and on another of the evil arising from ignorance resulting from the same method; but inconsistent as the two

statements may seem on the surface, they are really perfectly in accord. A knowledge of sexual matters picked up at haphazard, whether it comes from companions, from books, from newspapers, or from observation in real life, contains every evil without possessing the one compensating quality of truthfulness. The facts are distorted, the point of view from which they are presented is false, and worst of all, the natural laws which govern them, and the questions of health associated with them, are never explained, still less the consequences of breaking these laws.

Among well-to-do women whose daughters are protected from evil by the mere conditions of their lives, this particular fault of the let-alone system is of little consequence compared to others of which we have spoken. But with working girls, who must begin to support and therefore to protect themselves at an early age, the harm arising from ignorance of the natural laws associated with sexual things is piteous. There is but one opinion among those who have experience with working girls as to the cause of such a girl's first downward step. They all agree with one accord that in the majority of cases it is *ignorance*. Not ignorance of sexual matters, for they may be acquainted with many coarse and ugly things in regard to the subject. But ignorance of the natural laws governing them, and the consequences attendant upon breaking them.

It is not perhaps sufficiently recognized how greatly the conditions of life for girls in the working classes are changed from what they were a generation or two ago. Fifty or sixty years since a girl married early, and in most cases left her father's home for one of her own as soon as she could fairly be called grown up. If, however, she did not marry until later, and was obliged to work for herself, she went into domestic service in a respectable place where she was protected. Nowadays a girl does not marry for years after she is old enough to do something for herself; domestic service has been rejected in favor of any other form of employment; and, most efficient of all causes of change, the spirit of independence is abroad, and a girl demands what she calls her "liberty." In consequence of these changes the cities are crowded each year with girls from country neighborhoods and villages who want work in factories, or to be telegraph, telephone, or shop girls, or to follow any other of the many occupations now open to women.

That interesting little book, "The Long Day," shows what are the dangers to which such a girl is exposed, particularly if she is without any special training, as thousands of them are, and the author's experience in the steam laundry in particular, makes plain the nature of the temptations of one special kind, to which the most respectable girl is exposed. But all those who have experience among working girls agree

that this sort of temptation would be unsuccessful in the majority of cases, if it were not for ignorance, which seems in such cases to be at the special service of the devil. A woman physician who has a large practice among working girls has expressed herself on this subject in a recent paper thus: "Ignorance is perhaps the most serious of the many factors which work together to bring many working girls to ruin. The inducements in the way of dress, jewelry, and amusement, which are used to overcome scruples natural to every woman, would have far less weight if the consequences of indulgence were clearly understood." Judge Lindsay, of the Juvenile Court in Denver,—whose experience among juvenile delinquents of every class is well known,—expresses himself even more strongly as follows: "I say emphatically that nine-tenths of our girls who go wrong do so because of ignorance, due to the carelessness of parents."

But this condition of things, grievous as it is in one way, is hopeful in another. It speaks well for the intrinsic right principle of the working girl that ignorance should be the strongest factor in her wrongdoing, and it is reassuring to know that the most important means for her protection are at our command. It also presents another and powerful argument against leaving the knowledge of sexual things in a girl's education to chance. Those who are striving to introduce sex instruction into the schools consider the protec-

tion of the working girl one of the strongest arguments for their cause. And it is especially on account of the working girl that they urge concluding the course of instruction in general biology with lessons on the anatomy and physiology of reproduction in human beings, and following these with a series of talks on questions of health associated with them. The difficulty of finding the right person to carry on such a course of instruction is certainly great, but it is not insuperable, and there can be no doubt of the good to be accomplished by it.

The sex problem, as it stands at this moment in education is one of the vital questions of the day. Its solution undoubtedly lies in straightforward treatment, and especially in showing that the function of reproduction is nothing more or less than a natural law. No one denies that there are peculiar difficulties in dealing with the subject not present in the case of other natural laws, but the advancement of scientific knowledge and its introduction into all stages of education offer a means of meeting this difficulty which has hitherto been lacking and make our way plain to us. There can be no doubt that the method of teaching by gradual advance through different forms of life is destined to become more and more popular as time goes on, and there is every reason to hope that with its extension the evils arising from the oldfashioned system will gradually disappear.

CHAPTER VII

BODILY FUNCTIONS — EXERCISE — SLEEP

- I. Digestion: Action of saliva — Irregularity of meals — Exertion after meals — Eating between meals — Effect of mind on digestion — Character and preparation of food — Use of water — Use of tea and coffee.
- II. Respiration: Nose breathing — Disposition of atmospheric dust — Simple means of ventilation — Benefit from sitting out of doors.
- III. Exercise: Changes in physical life of girls — Correct carriage — Manner of walking — Cross-country walking — Riding and driving — Skating — Rowing — Swimming — Golf — Tennis — Basket-ball and hockey — Athletics in general.
- IV. Sleep.

DURING childhood our daily life is under other people's control. We live, and move, and have our being in accordance with a scheme of conduct in the choice of which we ourselves have little or nothing to say. But with girlhood individual responsibility begins. This is the time of life when the personal habits of a lifetime are formed and the girl must learn to be guided by her own judgment and her own sense of fitness and necessity. If she has been fortunate in her training, she has only to make it her own personal

possession; if, on the contrary, she has still much to learn as regards the conduct of daily life, she will do wisely to acquire the knowledge while body and mind are plastic and good habits are easily formed. To spend a little time in the consideration of physical well-being, therefore, can hardly be amiss.

I. DIGESTION

The first stage of digestion takes place in the mouth, and we can do more to help or hinder, even at this early stage, than we are apt to imagine. Food taken into the mouth is broken into pieces by the teeth and then moved to and fro in the mouth by means of the tongue and the muscles of the jaws and cheeks. During this time it is being mixed with saliva, and as the saliva serves more than one use, it is important to chew the food slowly and deliberately, so as to give it time to act.

It has long been known that saliva contains a digestive ferment, called *ptyalin*, which digests starchy foods; but it used to be supposed that the food did not remain in the mouth long enough for this ferment to have a chance to act. Proof has recently been given, however, that if food is chewed slowly and thoroughly, so that it remains in the mouth as long as possible, the salivary ferment is able to accomplish a certain amount of digestion. Moreover, if the saliva is plentifully mixed with the food some of it is car-

ried down along with the food mass into the stomach and its digestive action will go on there for some little time longer. Since these facts became known, the method of treating food in the mouth has been especially studied and developed by an Englishman, Mr. Horace Fletcher, who calls it "the science of feeding in a natural manner." and his views have become widely known as "Fletcherism."

The essential point in Mr. Fletcher's method is that while the food is being slowly and thoroughly chewed, the attention must be fixed upon tasting and enjoying it, not, as it usually is, upon swallowing as soon as possible. Of course, when the plan is tried for the first time the attention is almost wholly occupied by the effort not to come to the point of swallowing too soon, but as the process grows familiar, swallowing becomes more and more unnoticed until the food at last, so to speak, swallows itself. Not only solid food is subjected to the chewing process, but semi-solid and soft foods also must be chewed with deliberation; in fact, every article of diet, even milk, must undergo the movements of mastication. Liquids, except water, should be sipped in order that their taste may be perceived and enjoyed.

If it is objected that such a method of eating requires and consumes a great deal of time, the answer is that more nourishment is obtained from five minutes spent in eating according to its requirements than

from large amounts of food consumed in the usual rapid manner. It takes time, of course, to learn to eat after this fashion, but when the method is once acquired the whole amount of time devoted to taking food each day need not exceed an hour at the utmost.

It has also been objected that such a system must lead, in the long run, to a great decrease in the total consumption of food and consequently to insufficient nourishment of the body. But the experiment of living in accordance with the system has been tried successfully by nine young men, athletic students at Yale, who found no difficulty whatever in meeting the requirements of their work while doing so. Like all other systems Fletcherism has been misrepresented by opponents and overdone by supporters. The description just given is taken from Mr. Fletcher's own statement concerning it. It is impossible to say at present how far it will ever come into general use, but one thing is certainly established by it, namely, that we can assist digestion by taking time and pains to give our food slow and careful mastication.

The passage of food from the mouth to the stomach is only momentary. When the food-mass enters the stomach it finds the gastric juice all ready to act upon it, because the taste of the food while it is still in the mouth acts as a stimulus to the digestive glands in the stomach. This fact was recently proved by a Russian scientist, Pawlov, and it gives an additional

reason for allowing plenty of time and opportunity for the action of the saliva, since our sense of taste depends largely upon the power possessed by the saliva of dissolving substances such as salt, sweets, and acids. Pawlov has also shown that the gastric glands secrete most freely when the taste of food is agreeable. The enjoyment of food, therefore, is actually a help to the digestion and we are justified within reasonable limits in not eating what we dislike. The oldfashioned principle of education which obliged children to eat what was set before them, whether they liked it or not, was certainly bad for their digestions, however good it may have been for their characters.

One of the most fruitful sources of indigestion is irregularity of meals. This is a fact which young people ought to realize early in life, in order to acquire the habit of coming to their meals promptly at the appointed hour. Punctuality is a duty not only to our own digestions but to those of other people which must suffer if we keep them waiting. We are all creatures of habit and at the hour when we are accustomed to eat we feel the sensation known as appetite which signifies that the digestion is ready for work. If we keep it waiting, the desire to eat at first becomes more and more acute, and we grow uncomfortable and irritable because it is not gratified; a little later the wish to eat passes away and we begin to

feel a disinclination for food that leads eventually to faintness and, possibly, to nausea, so that the food is not well digested when at last it is eaten.

No vigorous exercise should be taken immediately after eating a full meal. It is a well-known fact in physiology that whenever a particular organ or tissue of the body is called upon to exercise its special function, the activity of the blood flow through it is increased in order to provide nourishment for the increased demand. After a full meal the circulation ought to be most active in the digestive tract; in other words, the attention of the circulation should be focussed upon the digestion. But if a rapid walk is taken directly after eating, the activity of the blood current will be diverted to the voluntary muscles used in locomotion, or, if we sit down at once to steady mental labor the blood flow is claimed by the demands of the brain. In either case the digestive organs will not have a supply sufficient for their work.

Nature gives us warning in this matter by the feeling of sluggishness and inertia which makes exertion directly after eating an effort, and if we disregard the warning we shall certainly suffer for it in the end. Many causes of chronic dyspepsia are caused by rushing into active occupations, whether bodily or mental just as soon as a full meal is disposed of. Slow mastication of food reduces the evil to some extent, because less work is thrown upon the stomach, but noth-

ing takes the place of half an hour's rest after the principal meal of the day.

One bad habit, which is most harmful to the digestion, is especially common amongst young girls, and that is eating between meals. It is easy to understand that if food is continually being taken into the stomach the digestion never has the complete rest which is necessary, at intervals, for all bodily functions. Moreover, the constant eating of small quantities of food destroys all appetite for regular meals and leads in the long run to insufficient nourishment, since the food taken at odd times almost always consists of cake, candy, and other dainties, not actually harmful in themselves, but not capable of taking the place of the fundamental articles of diet.

The condition of the nervous system has a marked effect upon the digestion. Eye-strain is closely associated with indigestion and many a mysterious case of dyspepsia disappears after the eyes are fitted with proper glasses. Mental influences also are able to help or hinder the digestive processes to a remarkable extent. Worry, anger, grief, anxiety and disagreeable psychical impression of any kind tend to check digestion, while on the other hand, nothing assists it more than tranquillity of mind. The mental atmosphere at meal times ought to be as bright and cheerful as possible, and if there is anything disagreeable which must be said, meals are not the time for it. Young people

sometimes make meal times most unpleasant by teasing one another, until the one who gets the worst of it is abjectly unhappy or has an explosion of temper. Teasing in itself is not such a bad thing; it supplies a useful family training in good temper, but it should never be allowed to crop up at meal times. Indeed it ought to be a fixed rule in families that all disagreeable topics be avoided while eating. Solomon showed his wisdom on this, as on many other matters, when he said that a dinner of herbs and quietness withal is better than a stalled ox and contention therewith.

Food in itself, both as regards nature and preparation, has an important relation to digestion. Youth requires a liberal supply of nourishing food to meet the demands of growth and development, especially of the so-called proteid foods, represented by meat, eggs, and milk, because this class of food supplies the nitrogen required by the muscles in abundance. Other kinds of food, however, also are needed, in fact, the more varied the diet the better, provided the food is simple, of good quality, and properly cooked. Fruit should be liberally provided. It is not, as some persons seem to think, a luxury, acceptable only for its agreeable qualities; it is a necessary article of diet. Certain organic salts, much needed in the body, are largely supplied by means of it and it is of the utmost service in keeping the bowels open. Sweet things in moderation and of good quality are good for almost

all girls. Sugar in itself is healthful and nutritious, and a well-made cake or pudding contains considerable nourishment in the milk and eggs put into it. The evil of sweet things — and they are often very evil — arises from injurious articles introduced into them to give stimulating flavors or a bright color, or else from the use of ingredients of inferior quality, used to save expense. Confectioners' sweets are not desirable as a part of the diet to any great extent, because, though reliable firms can be trusted not to use anything actually harmful, even the best of them do not employ material of the same quality as what is furnished at home. Cheap confectionery, especially candy, is apt to contain harmful ingredients, such as kerosene oil and aniline dyes.

A witty person once said that digestion begins in the kitchen and certainly many cases of dyspepsia originate there. The best digestion in the world cannot stand badly-cooked food for any length of time. No article of diet, no matter how simple, is wholesome if it is improperly prepared and its nourishing qualities are much lessened by bad cooking. In fact good cookery is as necessary to health as good food. It is just now a vexed question whether lessons in cooking and other branches of household science should form part of the school education of girls, and there is much to be said in favor of such a course. A discussion of even the elementary principles of cooking is out of

the question here; it is only possible to point out in passing the responsibility which rests upon parents and guardians to see that girls are properly provided with well-cooked meals. The only thing which a girl can do for herself in the matter is to avoid badly-cooked food, even if she has to sacrifice her preferences in order to do so. Greasy food is always badly cooked, so is half-baked bread or bread imperfectly raised; while overdone meat, if it is not actually indigestible, is deprived of much of its nourishment.

Water is a most important article of diet; in fact, its value as a factor in the preservation of health is much greater than is commonly supposed. If the body is deprived of water altogether it suffers more than it does when deprived of food. This fact has been frequently observed in cases of shipwreck, when the survivors are found to be more emaciated and to have endured greater suffering if they were without water than without food. Arctic explorers also are able to travel incredible distances with almost no food, because they can always get water (of a kind) by melting ice or snow. This necessity for water arises from the fact that the tissues of the body are largely composed of it; it forms, in fact, about two-fifths of the body weight, and as it is constantly being excreted by the kidneys and the skin, the loss must be made up at frequent intervals. To a certain extent the amount required to supply the loss is furnished by the water

contained in the food, for all food contains some water. But an additional amount of not less than two and a half to three pints must be taken in as drinking water every twenty-four hours. Many people are careless about this matter; women especially are apt to be so. They almost always drink too little water and in the long run the health suffers from this neglect. It is a good plan for girls to form a habit of drinking a daily allowance of water.

In regard to the question of what is the best time to take drinking water, there is no doubt that some of it should be taken at meals. There seems to be a common impression that water drunk at meals is bad for the digestion, but it is hard to understand on what such an idea is founded. Certainly there is no truth in it; on the contrary, in moderate amounts water at meals is really of assistance to digestion, for a certain amount of fluid is necessary to mix with the food and further movement of the stomach, upon which digestion largely depends. The feeling of discomfort which some persons complain of when they drink water with their meals is probably due to their eating large quantities of food without taking time to chew it properly, and then washing it down with copious draughts of water, a procedure which naturally causes sensations of distension. A certain proportion of the daily allowance of water should be taken when the stomach is empty, because, taken in this manner, it

flushes out the blood vessels, particularly the circulation in the kidneys. Three pints of water is about equal to six drinking glasses full; one glassful may be taken with each of the three meals, and the remainder on rising in the morning, on going to bed at night, and in the middle of either the morning or afternoon. No one need be afraid of taking more than this amount, but to take less is distinctly a danger to health.

The subject of food ought not to be abandoned without a word on the use of stimulants. Young girls are not exposed to the dangers of alcoholic stimulation to the same extent or in the same manner as young men. The risks which girls encounter are generally present in unsuspected places, such as patent medicines containing alcohol or opium. This particular aspect of the question on which there is so much to be said is discussed elsewhere (see Chapter XIII); what should be emphasized here is the risk lying in the use of the everyday stimulants, tea and coffee. A great deal of harm would be avoided if it were never forgotten that these beverages are *stimulants* and not food; there is no nourishment in either of them, except what may be contained in the milk and sugar added to them. It would not be fair to deny that their powers of stimulation have a definite field of usefulness in their proper place. When middle life is reached and the vital powers have passed the highest point, a cup of tea or coffee on rising in the morning, before beginning the

day's labors, is often of great service by stimulating certain nerve cells and causing a consequent rise of blood-pressure throughout the body. But in youth, when the vital processes are, or ought to be strong and vigorous, such stimulation is not only not necessary, it is actually harmful. Any young girl who feels the need of stimulation in order to exert herself is not in good health, and what she really requires is rest, care, and medical advice. If tea and coffee are taken habitually in girlhood, by the time middle life is reached and the use of them would be really beneficial the ordinary quantity has no longer any effect, and stimulation can only be obtained from such large amounts as to injure digestion, to say nothing of the nervous system.

Tea and coffee are particularly harmful when they are taken in the place of food. It is distressingly easy to get into the habit of thus misusing them, especially in the case of girls who are supporting themselves away from home and prepare one or more of their own meals. The danger to health from even the moderate use of these beverages in youth is so great that there is really only one safe course of action in regard to them. This is to avoid them altogether during girlhood, except on special occasions, when their stimulating powers are needed, and after womanhood is reached to use them cautiously, so that all the benefit which scientific investigation teaches us is to be ob-

tained from them in middle life may be at command when it is most needed.

II. RESPIRATION

Respiration is less under one's control than digestion, nevertheless, there are certain points, mostly of an indirect nature, in which we can do a great deal to preserve good health by attention to it.

One of these important points is *nose-breathing*. Atmospheric air is both too cold and too dry to be taken into the lungs directly; it must first be warmed and moistened by contact with the mucous membrane over which it passes on its way. Air taken in by the mouth receives a certain amount of the necessary warmth and moisture from the mucous membrane in the mouth and pharynx, but not nearly so much as it does when it enters through the nose, because the interior of the nose is especially adapted for the purpose. Inside it are various small bones having an irregular shape, something like a scroll, and the mucous membrane covering these bones follows all the irregularities of their surface. By this means the extent of mucous surface over which the air must pass before reaching the lungs is greatly increased and there is plenty of time and opportunity for it to acquire warmth and moisture.

Another reason for the atmospheric air entering the lungs by way of the nose instead of the mouth is that

when it does so the dust and impurities contained in even the purest air are, to a large extent, prevented from reaching the lungs. The surface of the mucous membrane in the inside of the nose is covered with delicate waving processes, known as *cilia*, so small as to be visible only through the microscope; while at the outer margin of each nostril are tiny hairs called *vibrissæ*. The coarser dust in the atmospheric air is caught by these vibrissæ and prevented from entering the nose at all, while the finer dust which manages to sift through, is taken up by the moist surface of the mucous membrane and carried back toward the outside by the movement of the cilia. This arrangement is of great importance from the standpoint of health, for not only is dust itself injurious to the lungs, but there is always the possibility that it may contain the germs of disease. Diphtheria, in particular, is easily acquired through the respiration if the air is taken by the mouth and throat instead of by the nose.

Nature plainly intended that we should breathe through the nose, as its interior is adapted for the purpose, nevertheless, many people have a fixed habit of breathing through the mouth. Sometimes this is because their attention has never been called to the matter; sometimes there is an obstruction that makes nose-breathing difficult or impossible. It is a simple matter to find out whether such an obstruction exists by shutting the mouth and then making an effort to

breathe through the nose. If there is an obstacle, breathing will be more or less difficult, and then, by closing first one nostril and then the other, it is easy to decide whether one side only is obstructed or both. When both nostrils are completely closed, breathing is impossible while the mouth is shut. Nasal obstructions are of several different kinds. There may be a growth at the back of the nose, or the mucous membrane lining the nose may be thickened from chronic inflammation, or the little bones in the interior are so distorted in shape as to close the passage. Whenever it is discovered that an obstruction of some kind exists, a specialist should be consulted. In many cases, in fact in most of them, the trouble can be entirely relieved by some simple treatment.

If no obstruction exists, and the mouth breathing is nothing but a bad habit, every effort should be made to overcome it. It is comparatively easy for young persons to do so and it is of great importance to their health that they should. One inducement towards making the effort, which ought to weigh strongly with young girls, is that the half-open mouth, always present in habitual mouth-breathers, gives the face a stupid, almost idiotic expression that detracts greatly from personal appearance. Conscientious effort to breathe through the nose with the mouth shut will do a great deal to cure the habit of mouth-breathing. Care must be taken to see that the passage through the nose is

kept free from temporary obstruction, such as mucus. The nostrils must be cleansed night and morning, with soap and water and a bit of soft rag, but it is not advisable to use a nasal douche without a doctor's sanction. The little hairs at the margin of the nostril must never be trimmed.

The proper disposition of atmospheric dust is a most important element in health and one in which women are especially concerned. If, as Ruskin assures us, dust is only a substance misplaced, the manner of its misplacement is one for serious consideration, for its irritating qualities make it most injurious to the lungs and throat, to say nothing of the fact that it is often the bearer of disease germs. The method of dusting deserves far more attention than it is the custom to bestow upon it. Its aim should be to collect all the dust possible and then dispose of it safely out of the way of doing further harm; but the practical result of the method generally employed is to scatter all the dust in a room into the surrounding atmosphere and so facilitate its doing as much harm as possible. It would be hard to invent an implement better adapted to the harmful distribution of dust than the feather duster, so dear to the heart of housewives. A cotton or silk duster is only one degree better, so long as it is dry. The great and important point in a duster is that it shall be *moist*, so that the dust will adhere to it and can then be removed by washing. **The best material**

for the purpose is cheese-cloth, but any soft loose-meshed substance will do. It must be slightly but thoroughly dampened, not enough to leave wet lines in its track, but sufficiently to take up the dust on the surface over which it passes. After such a duster has done its work it must be washed, or at least placed in water ready for washing; it must never be used again just as it is.

The patent sweeper with a top serves its purpose by collecting the dust which it removes from the floor, in a closed receptacle; but when the straw broom is employed, the surface to be swept ought to be covered with some moist substance, such as the old-fashioned tea leaves, to which the dust will adhere. Clouds of dust, raised in sweeping a dry floor, are one of the most effectual means in the world for distributing the germs of disease. I once knew a case of severe illness which there was every reason to believe had its origin in the dust from the floor of a railway station. A traveler, who sat waiting for a train in the small hours of the morning, had fallen asleep on a bench in the waiting room, when he was aroused by a feeling of suffocation, and found himself choking in clouds of evil-smelling dust, raised, as he perceived, by the caretaker, who was beginning his daily cleaning without making any attempt to keep down the dust collected by the feet of the passers-by during the day before. Forty-eight hours later the traveler was taken

ill with a bad attack of infective bronchitis, the germs of which had no doubt been deposited on the waiting room floor in the expectoration of someone with the complaint.

This is not the place for any detailed discussion of the question of ventilation, but there are a few suggestions available for individual application that may be useful here. The word ventilation comes from the Latin *ventus*, a wind, and is used to signify a movement of the atmosphere by means of which fresh air, if possible from the outside, is introduced, while the vitiated air is removed. The oxygen in every room occupied by human beings is always being exhausted, of course, not only by the human beings themselves, but by fires, gas-burners, and other means of heating and lighting, as well as by animals, if any are present, while at the same time the carbon dioxid is continually increased. As a matter of fact, however, the atmosphere of a room is injurious to health long before the oxygen is exhausted or the carbon dioxid in excess, the evil effects being due, as science has recently shown, to increase of heat and moisture in the expired air. Everyone is familiar with the headache, drowsiness, and other ill feelings experienced after spending some time in a room without proper ventilation occupied by human beings, and if these bad conditions are kept up day after day, they result in permanent injury to health. Girls who work in factories, for instance,

or other crowded workrooms, are nearly always in feeble health and liable to disease; but fortunately simple means for removing the difficulty are always at hand at the expense of very little trouble.

Every room occupied by human beings ought to have its windows and doors open for some part of every day, but when the rooms are crowded for the whole day this is not sufficient. Rooms used by successive relays of people, as classrooms, can be ventilated between the classes; but when this is not possible, as in workrooms, small schoolhouses, or even sometimes family sitting rooms, some means must be found of renewing the air while the room is occupied. Sometimes this can be accomplished by lowering the upper sash of the windows, and so permitting the escape of the upper layers of hot, exhausted air; but if the room is so crowded that some persons are obliged to sit directly under a window they will feel too much draft. A device which does good service under these circumstances is to raise the lower sash from three to six inches and close the opening with a piece of board fitted to its size. The fresh air enters between the sashes, but as it does so it must take an upward direction and cannot blow upon anyone. Any carpenter can furnish a piece of board six inches wide, which can be cut the desired length by anyone with a saw, and if a board is not available, a number of newspapers rolled up into a pad of proper size will answer the purpose.

The means of introducing a reasonable amount of ventilation then are at the command of everyone, for there is no one who cannot obtain a package of old newspapers; and if girls working in crowded close rooms will only take the trouble to fit a ventilator of this description, whether board or newspapers, into each of the windows of the room in which they work, the good effects upon their general health will be marked.

But air inside a house, no matter how much is done for its ventilation, can never take the place of the outside air. A certain amount of time passed in the outside air is necessary to health, quite apart from any question of exercise. It is possible to take exercise in the house, and a great deal of time can be spent out of doors without any exercise at all. Unless the weather is bitterly cold or very inclement, it is possible to read, write, sew, and do many other useful things out of doors, if we accustom ourselves to the practice. The habit of occupation out of doors is of great importance to the health of young girls. At this period of rapid growth, when heavy demands are being made upon the vitality, some girls have not sufficient strength for vigorous bodily exercise, and then if there is any tendency to anemia or to disturbed action of the heart, as we have seen sometimes happens, walking for more than very short distances is too much. Girls who can command carriages and automobiles are only a fortunate few, and for the less fortunate, who, of course,

are much in the majority, sitting out of doors is the great resource.

Nothing, I repeat, is more important to health in girlhood than abundance of fresh, outdoor air, and for girls whose strength is at all below par, sitting out of doors and carrying on their occupations is one of the most valuable means at our command for preserving and building up strength and vitality. After a few years when growth is complete and all the life processes are established on the normal basis of womanhood, the girl will be a strong woman, able once more to take all kinds of active bodily exercise; but she will be a stronger, healthier woman all her life if this plan of getting fresh air without fatigue is carried out. I have emphasized this point, not only because of its importance, but because it is curiously hard to induce people to take such simple measures for the benefit of health. There seems to be some deeply-rooted prejudice in human nature which makes us unwilling to try a measure likely to improve our physical condition unless it is, so to speak, guaranteed by the expenditure of money or trouble. It was a perception of this prejudice which caused a wise old family doctor to remark that he wished sunlight was expensive, for then he could get his patients to make use of it.

The habit of occupation out of doors is of great service to girls and in fact to women also, during the monthly period. The amount of active exercise taken

must then be more or less curtailed, but the amount of time passed in the open air should, if possible, be increased, and a girl who adapts her life along these lines does much for her own comfort and welfare.

III. EXERCISE

The present generation is witness to a remarkable change in the attitude of public opinion towards physical exercise for girls. Fifty years ago their brothers were no better off than they as far as organized physical activity was concerned, the first gymnasium for boys in this country being opened in Harvard in 1826, in one of the dining halls. But there was never a time when boys could not enjoy all kinds of active out-door pursuits and games, whereas girls were excluded from the quietest of them under penalty of losing caste and being condemned as rude and unfeminine. For the country girl a decorous walk along a country road and for her city sister an expedition into the shopping district, were all the means of physical activity at the command of women up to comparatively a few years ago. Even such restricted amusements as the above had to be partaken of in the most subdued manner, all freedom of movement or exhibition of animal spirits being sternly repressed and severely criticised. Bishop Potter, in his excellent article on recreations for women in Harper's Bazar, has drawn a true picture of the girl of our grandmother's day as she appeared abroad.

"She walked," he says, "like a trussed fowl, with her hands crossed in front of her and with a rigidity of movement which, in her time, was defined as 'thoroughly ladylike.'"

Even if a girl's parents had been sufficiently advanced to place the laws of health before those of conventionality, her improved physique would have been no advantage to her in some respects. A glance at the novels of one or two generations ago shows us how high was the æsthetic value then placed upon fragility of form and delicacy of appearance; and such being the canons of womanly beauty, a parent who sacrificed these desirable attributes to health and vigor would have been in much the same position as a Chinese father who declined to have his daughter's feet bound. No matter how much a Chinese grandee may be convinced of the evils of foot-binding, he dare not defy immemorial usage in the case of his own child, because, as he truly says, her chances of matrimony would then be extremely small. Western civilization does not sanction such baldness of speech, but the principle involved is a fundamental one, and seventy-five years ago a strong, robust girl would have found no favor in the eyes of the other sex.

But all this unreasonableness is a thing of the past. To-day public opinion smiles upon the girl who distinguishes herself in athletic pursuits, and large feet, generous waists, and sun-burned skins are spoken of

with approval, if not admiration. Hardly any variety of athletic pursuit is now denied to women, and even in the short space of time that her path to them has been open, she has shown that she can hold her own, and that, within certain restrictions, she is the better for doing so. I say within certain restrictions, because there are distinct fundamental differences between the sexes which must always render some of the more severe forms of athletics unsuitable for women. As Dean Briggs said, when addressing the graduating class at Wellesley College, "Fiercely competitive athletics have their dangers for men, but they develop manly strength. For women their dangers are greater and the qualities they tend to develop are not womanly."

The first of all things to be considered from the point of view of physical activity is a correct carriage of the body. A faulty carriage is one of the ugliest things in the world, besides being one of the most unhealthful; moreover, it is wholly unnecessary, for it can always be prevented, except of course, in cases of actual deformity. Women are much more apt to have an awkward carriage than men, partly, no doubt, because so little attention has hitherto been paid to their physical training. Occasionally a girl is gifted by nature with a good movement in walking and a fine carriage of the body, but the number of such fortunate persons is small. Most girls must acquire these at-

tributes for themselves by means of care and effort, and girlhood is the time when it must be done, for in later life when the bones of the skeleton are completely hardened, the best efforts can achieve only partial success. The two great means of acquiring a good carriage are the avoidance of careless, ungraceful habits of walking and standing, and attention to whatever form of physical training is available. One simple means of improving her walk and manner of holding herself which any girl can practice, is to walk about the room and then up and down stairs with a pail full of pebbles or sand upon her head. The graceful carriage of so many uncivilized women is owing to their practice in this art and even the most modified use of the custom has remarkably good effects.

The proper posture in standing is square on both feet, which should be from one to six inches apart, with the heels well in line and the toes turned *slightly* outward. The arms should hang easily at the sides and the body must be drawn up erect to its full height, with the shoulders held square and thrust a little backward, and the chin drawn inward. All other parts of the body will then fall easily into the right position. The weight of the body ought to rest on the ball of the foot rather than on the heel.

In sitting down it is important to sit upon the whole seat of the chair, not upon its edge. An easy attitude is impossible when sitting on the edge of the chair, and

an attitude which is not easy is never graceful nor healthful. The feet should rest on the floor with ease and if the chair is too high for this, there ought to be a footstool. It is a very bad plan to lounge when seated on a chair. Rest, with relief from the upright position, is a good thing occasionally for everyone and especially for a girl who is growing rapidly; but it ought to be on a sofa, a lounge, or a bed. If a chair is used for it, it should be one with a deep seat and a back high enough to support the head, such as a Morris chair.

In walking, the figure must be held erect, so that the back, the neck and the shoulders are in a straight line. The feet should point straight ahead or very slightly outward, while the weight of the body must be thrown to the outer side of the foot, which is the strongest. When the inside edge of a shoe begins to wear out much before the outside edge, it shows that the weight is not properly thrown, or the feet are not properly held. The body must incline somewhat forward from the waist with the shoulders well set back, and on going up hill, the inclination of the body must be increased. Its stride should be easy and free, with the legs moving from the hips and the arms hanging loosely at the sides.

And just here a word should be said as to the ugly and ungainly fashion of walking which is now becoming far too common. When physical culture first be-

came the fashion for girls, its advocates believed that everything needed in physical life was covered by freedom of movement and activity. But as time has gone on, it has become apparent that although physical exercise makes girls healthy and gives them strength and freedom, it does not, of itself, make them graceful. Some of the women who pay most attention to physical culture are singularly ungraceful. In nothing is this defect of physical training more apparent than in the long ungainly stride and swinging arms affected by the athletic girl of to-day. The steps in walking should not be longer than the length of the limbs permit with ease. A step that is natural and graceful for a tall girl with slender limbs, is distinctly too long for a short girl with wide hips and much adipose tissue on her lower limbs. Whenever an effort is perceptible in the stride, the length of it is too great; it ought to be unnoticeable in the general movement of the body.

The widely swinging arms are another great defect, and while no one could wish to renew the fashion of the trussed fowl, described by Bishop Potter, it is impossible not to regret the disappearance of the lady-like feeling which controlled a girl's movements in those days.

Many persons interested in girls' physical education are beginning to ask what remedy can be found for this lack of grace and elegance, and it has been suggested that it will be found in dancing. Not dancing

as it takes place at entertainments for amusement, but æsthetic or, as it is sometimes called, figure dancing. It gives training in the harmonious movement of the arms, the head and all the movements of the body, and it is also of value in the acquirement of co-ordination. Nor is its mental training to be despised, for if the different movements of the body are to be executed in harmony, they must be directed simultaneously by the mind. Such dancing is not a mere moving of the feet to movement. A well-trained dancer must express what she feels and appeal through her movements to the feelings of others. It is this quality that makes the difference between a dancer and a gymnast. All these things give dancing a strong claim to attention in physical education, and those who are interested in overcoming the present defects of physical training for girls, are making an effort to have it introduced as a systematic part of gymnastic work. It is greatly to be hoped that they may succeed.

By far the most common form of out-door exercise is *walking*, for the obvious reason that everybody, except cripples, has the means of doing it at disposal. There are different kinds and degrees of walking, from the stroll around the garden to a ten-mile walk across country. To make any kind of walking beneficial to the health, one thing is necessary, namely, that it shall be enjoyed. A walk taken against the will, or in the company of sad thoughts, anxieties, or annoy-

ances, can do no one any good. Some people enjoy walking for itself; they take pleasure in the motion, in the sense of freedom, in the general appearance of things around them. Others, with more or less trained tastes for botany, geology, and other forms of nature study, find enjoyment in the objects upon the road. But there is a third class of walkers, and a large one, whose pleasure in a walk lies mainly, if not wholly, in its object. This last variety of walker is at a disadvantage compared with the other two; nevertheless, such people get a great deal of benefit from a walk which has the pleasure of anticipation one way and that of retrospection the other. Some enjoyment in the walk there must be, or it is better to stay at home and carry on some congenial occupation in the open air.

Cross-country walking, as it is called, has never been so popular in this country as abroad, probably because the climate in most parts of the United States is unsuited to it during the greater part of the year. Nevertheless, there is a certain amount of it with us and to people who enjoy it nothing is more delightful nor more healthful. But it requires time, strength, endurance, opportunity, proper equipment, and above all inclination. No one who does not enjoy walking for its own sake ought ever to undertake it or she will be a burden to herself and to others. Girls who set out on a walk across country must not only be prepared for obstacles, but enjoy them; fences, hedges, ditches,

swamps, hills, valleys, brooks, briars, are all part of the day's work. A walk of this kind ought always to be taken in the morning, if possible, and it is a great mistake to waste time and strength in walking to the place where the country part of the walk is to begin. Those who live in cities will do wisely to take a trolley until they are beyond the city limit and so save all their strength for the country.

The rate and length of a walk are matters of individual taste and endurance. Three miles an hour is a good average rate. Not many American girls can walk as much as ten miles at a stretch; five or six is a better limit for them. A healthy girl after such a walk ought to feel hungry for her next meal and should sleep soundly as soon as she goes to bed, getting up next day quite refreshed. If she is too tired to eat, if she lies awake from fatigue, or if she feels used up next day, the walk has been too long for her, and she will get more harm than good from it. Beginners often make the mistake of taking too long walks, forgetting that most people have to train themselves by degrees. A few weeks or months of practice will enable a girl to take walks that were quite beyond her power at first.

A suitable dress is essential for cross-country walking; a short skirt, coming just below the top of the boot being its most important feature. The material of the skirt ought to be light in weight, with a smooth

surface. Fuzzy surfaces or those with raised patterns are constantly catching burrs or briars, to say nothing of unnecessary dust. Denim makes a good inexpensive skirt. The skirt should be made without pleats, except a couple at the back to give freedom of movement. The waist ought to be some form of blouse and one made of wash material is best. If there is any danger of being chilly it is better to carry a light jacket than to wear a woolen waist.

The boots should be laced neatly, but not tightly, because the feet and ankles are liable to swell. For this reason some people prefer low shoes, but unless the swelling is marked it seems a pity to lose the support of a boot around the ankle. Tan leather is cooler than black and does not show dust so freely. The heels must be low and flat, an inch to an inch and a quarter in height is about right. Care ought to be taken to see that they do not become worn down on one side. As soon as they show any tendency this way they should be straightened, for if the foot is not in the right position while walking, the fatigue of motion is greatly increased.

The choice of stockings is not without importance, for the foot is rubbed by an ill-fitting stocking even more quickly than by an ill-fitting shoe. The stocking must be the exact size of the foot and of moderate thickness. It is a mistake to wear thin stockings on long walks, for there is great danger of wearing holes

in them, and then the shoe will rub the skin. Garters, whether below or above the knee, are most objectionable on account of their interference with the circulation.

The hat should be light in weight, with a brim, but no trimming except a scarf of muslin or silk. Ornaments of any kind upon it are out of place. It is the fashion nowadays to go without a hat altogether, but this is a mistake, for sunburn of the hair is very injurious, giving it a dull, faded look and making it harsh and brittle.

Riding on horseback is one of the most delightful of outdoor exercises, but the expense involved is so great as to make it out of the question for all but the favored few. It is a pity, however, that those who can command the means for it do not acquire the art of riding well. *Driving* is, of course, only a passive means of exercise, and holds much the same position as sitting out of doors, except that it has the advantage of affording change of surroundings. For delicate girls or those who are temporarily incapacitated it is an excellent thing, but for strong, vigorous girls some more active form of exercise is better. Moreover, driving, like riding, involves more or less expense. *Bicycle riding* is now largely a thing of the past; it has its good and its bad side. No doubt it does, as its advocates claim, take the mind off cares and worries and give a complete mental change, together with fresh air

and muscular exercise. On the other hand, it obliges such incessant attention to itself that enjoyment of scenery or agreeable conversation with a companion are impossible, and it rarely fails to develop a species of obsession which destroys all pleasure in any other variety of amusement. As a means of getting over ground it is useful and there are some cases for which its special recommendations as a form of activity out-balance its disadvantages; but there is certainly no reason for regret that its day is pretty well over.

One of the most healthful and delightful forms of outdoor exercise is *skating*, and it is a pity our enjoyment of it in this climate is so limited. There is nothing which shows the difference between past and present so strongly as the change in public opinion as regards the propriety of skating for girls. In our grandmothers' time it was considered almost as indecorous as the flying trapeze. An old lady once told me that in her childhood, now nearly eighty years ago, her desire to skate with her brothers was refused peremptorily as unladylike and tomboyish. Other little girls submitted meekly to the restraint, but this one, having more independence and inventiveness than her companions, constructed a pair of skates from the inverted breastbones of turkeys, and with these primitive implements she skated surreptitiously upon the ice in the gutters as long as their frail support lasted.

Now that these restrictions are a thing of the past,

every girl ought to know how to skate and practice the accomplishment whenever the opportunity offers, for as a means of physical activity in the open air it has no equal. The exhilaration and excitement accompanying the rapid motion in the cold air are delightful beyond expression, and the objection, sometimes made, of possible danger, is groundless, if only the most reasonable precautions are taken. It is within the power of anyone to ascertain the thickness of the ice to be skated on and to keep away from thin places. Two inches of clear black ice is sufficient to bear; if it is not perfectly clear it must be thicker; and snow ice, which is quite insecure, must be of considerable depth.

Patent screw skates which do not require straps are best, for straps interfere with the circulation in the feet. If strap skates are used, they must be buckled with perfect evenness. The extreme length of the skate should not exceed the length of the boot, and when putting it on the blade ought to follow a line from the center of the heel to the center of the toe of the skate. The blade must be moderately sharp. The boots should be laced, not buttoned, with a low, level heel, not more than an inch in height. The only cases in which skating is not a healthful exercise are those of persons whose circulation is so poor that they cannot keep warm, even with all possible precautions. If a girl finds that, in spite of additional warm clothing she continues to feel chilly, or her feet are persistently

cold and numb, she had better give up skating, for the time being, at any rate. Fortunately such cases are extremely rare, and even when they occur, a few years' interval with corresponding improvement in the general health will very likely remove the difficulty.

In places where the climate permits little opportunity for enjoyment upon frozen water, there is so much the more to be had from water in its natural state. Not a few girls make beautiful rowers, though there is a certain tendency with them to take all the strength of the pull from the arms instead of from the back, which is the place from which it should come; the arms are only the medium through which the strength is exerted. Long continued rowing with the strength taken from the arms will result in a contraction of the chest instead of expansion and the shoulders will get a forward, instead of a backward inclination. This tendency to neglect the muscles of the back seems to be innate in women and therefore girls should take great pains from the beginning to bring them into play. Another defect apt to appear in girls' rowing is burying the oar too deeply on the stroke and then carrying it too far up on the recovery. This is what is known as a "rocking-horse rowing." The blade of the oar ought to be only just neatly covered by the water during the stroke, and then carried just clear of the water on the recovery.

The girl who rows ought, as a matter of course, to

know how to swim. In fact, a girl who cannot swim should not row in water more than three to four feet deep, a restriction which greatly interferes with the pleasure of rowing. But apart from any question of safety, swimming as a physical exercise is full of enjoyment. Whenever a girl has a chance to learn swimming, she ought to take it, but her first efforts must always be superintended by someone with experience, for if she should have any unsuspected heart weakness, it may show itself suddenly under the exertion. A difficulty which girls have to contend with in swimming is that their bathing suits are almost always too heavy. A bathing suit should be made of the lightest possible flannel, and it is much better for it not to have a skirt. Full knickerbockers make a perfectly modest and ladylike costume and anyone who has ever tried swimming with and without a skirt will appreciate the amount of discomfort caused by one.

Of all the various terrestrial amusements *golf* is probably the one which, taking all things together, has most to offer. It keeps the player in the open air for long spaces of time without violent exertion and possible over-taxation of strength; it is possible to play it almost all the year round; it does not require unusual vigor or muscular development; it can be played alone, so far as enjoyment is concerned, without either antagonist or spectators; and finally, it is possible to play an agreeable game over rough surroundings not es-

pecially prepared for the purpose. Over and above all these excellencies, golf possesses the additional merits of exerting an admirable moral influence, arising from its constant struggle towards perfection independent of competition.

Tennis is a game for the robust only. In itself there is much to recommend it, and no doubt many girls growing up to-day are vigorous enough to play it just as their brothers do; nevertheless, the fact remains that it is a pastime which demands strength and endurance in considerable amount. Any girl who attempts tennis and finds that after a reasonable interval allowed for training, she cannot play without excessive effort or long-enduring fatigue, ought to give it up.

Basket ball and *hockey* are still more strenuous than tennis, moreover they are games which must be played in teams and are, therefore, especially suited for schools and colleges. There is a certain antagonism to them among conservative people, because they are violent and (at any rate in appearance) very rude. Moreover, the element of danger is by no means absent. It is quite certain that the "fiercely competitive element" condemned by Dean Briggs, is present in all match games between different institutions, and time only can show whether the objections on this score are strong enough to make interschool and intercollegiate games wholly unsuitable for girls. But as an outlet for animal spirits and youthful energy among healthy young

girls living in communities without the element of outside competition, they certainly serve a useful purpose. Most boarding schools for girls have now some provision for basket-ball, and this resource, together with other forms of outdoor exercise, is one reason why the outbursts of hysteria, running through the whole school, which used to be a feature of such institutions, are now a thing of the past. Moreover, these pursuits afford an outlet for the high spirits and love of excitement characteristic of girlhood, which formerly found expression in all kinds of mischief and insubordination.

IV. SLEEP

Nothing is more important to the health of the young than abundance of sleep. The amount of sleep necessary in adult life differs with different individuals, and some persons get along with very little; but no young person can do this. Up to twenty or twenty-one years of age the allowance of sleep cannot be lessened without serious bad effects. Every girl between twelve and fifteen ought to have ten hours' sleep and between fifteen and twenty, nine hours. That is to say, she ought not to have less than that amount. If she can take more, so much the better for her. There is, or at any rate there ought to be, no difficulty in providing this amount of sleep for a young girl. If she is in bed and asleep by half past nine and gets up at half past seven, she has had the full allowance.

Many persons have fixed ideas as to their sleeping arrangements and believe that they cannot possibly sleep unless the conditions are those to which they are accustomed. It is a great pity to get into the habit of being dependent upon any sort of external condition and young people ought to train themselves carefully to disregard such things. It is just as easy to train one's self to be independent of externals as to train one's self the other way. Only two things are really necessary to healthy sleep; fresh air and warmth of the body. To obtain these conditions it is justifiable to make an effort and give trouble to other people, but not for anything else.

The atmosphere of a sleeping room is of real importance to health. When we remember that over one-third of our time is passed in sleep, it is obvious that the atmosphere in the room in which we sleep is a matter of some little importance, and as we are unable to do anything to regulate the atmosphere while we sleep, it is desirable to make preparations for ventilation before going to bed. The windows of a sleeping room ought to be open both in summer and winter. To sleep with the windows open is largely a matter of habit, and there is no healthy girl who cannot accustom herself to it. It is true that if anyone who has not been used to sleeping with the windows open, makes her first trial of it during cold weather, she will, quite likely, catch cold; but this is a small mat-

ter compared to the benefit resulting from the habit in the long run.

No one, of course, ought, in the old-fashioned phrase, to "sleep cold," but there is no reason for doing this even if the windows are open. Unfortunately there are many persons who consider it a fixed principle of health that the heating apparatus in a room, whether it is a fire, a stove, a hot-air flue, or a steam radiator, shall be shut off on going to bed. This idea has a curious hold even upon people who possess no real hygienic principles whatever, but it is an entirely mistaken one from which much mischief has sprung. To sleep in a room with the heat turned on and the windows shut is very unhealthy, of course, but there is no reason whatever that the heat should be turned off, if the windows are open. The temperature of a sleeping room should be about 55 deg. to 60 deg. F., and of course it will fall greatly below this during the winter in a room where the windows are open, if there is no artificial heat. Bodily warmth is necessary to sleep, therefore the bed-clothes ought to be warm, but this does not mean that they should be heavy. The down quilts now in use are a great blessing, for they give the maximum of warmth with the minimum of weight. It is a pity they are so often regarded in the light of luxuries, for one of them is really not so expensive as a good pair of blankets, and far more useful. Whatever the covering to the bed may be, the

heavy outer spread of white material should be taken off at night, for it presses upon the body and keeps it from assuming comfortable attitudes while sleeping without contributing to warmth. There ought always to be some additional covering near at hand which can be drawn up in the early morning when the room is coldest and the vitality of the body at the lowest. On getting up in the morning the bed clothes ought to be turned back completely from the foot of the bed, and if the windows are shut while dressing, they must be opened again when the toilet is finished, so that the inside of the bed shall have a chance to be thoroughly exposed to the fresh air.

A great deal has been written and said about the position in sleeping, but after all, the best position is that which is the most comfortable. It makes no real difference whether a person lies on the side or the back, or even on the face; whether the head is high or low. The only question of importance is whether the attitude is comfortable and the sleep is good. As a matter of fact many people cannot sleep on the back without being restless and uncomfortable, with horrible dreams or nightmare. There are a few persons, however, who sleep more comfortably on the back than in any other posture.

Sleeplessness, or to call it by its technical name, insomnia, is rare in young girls; when it does occur, it is a sign that the nervous system is much out of order.

Nervous disturbance in young people, however, is more apt to show itself in restless sleep, with bad dreams and nightmares, or sudden and terrified awakenings, than in the absence of sleep. Another form of nervous disturbance is sleep-walking. All these disturbances are especially apt to manifest themselves about puberty. They are always a sign that something is wrong with the nervous system, and if the cause is sought, it will usually be found in some nervous strain or pressure. Too much school-work, anxiety and worry about standing in classes or in examinations, exciting reading out of school, when time should be spent out of doors in the open air,—are all favoring causes. Disturbance of sleep in young girls is rare, but when it does occur, whatever its cause, it is a serious thing and should never be neglected.

CHAPTER VIII

PERSONAL HYGIENE

Skin — Bathing — Complexion — Teeth — Hair — Hands
— Feet — Eyes — Ears.

THE *skin* consists of two layers: the *epidermis*, or outer skin, and the true skin, or *dermis*. In the lower portion of the true skin are the sweat glands which discharge their secretion by means of ducts opening on the surface of the epidermis. These glands are present almost all over the body and it has been estimated that there are altogether about two millions of them. A considerable part of the excretion of the body is done by the sweat glands, a good deal of water being removed by them each day as well as various waste products, the whole forming the sweat, or perspiration. The sweat glands also perform an important function in the regulation of the temperature of the body.

If the sweat glands, for any reason, fail to act, perspiration ceases altogether and death takes place in the course of a few hours, partly because the waste products that should be excreted by the skin collect in the blood and act as poisons to the body, and partly because the temperature is no longer properly regulated.

This is why superficial burns, if they cover a large part of the body, are dangerous, so many of the sweat glands being destroyed that the waste products accumulate to a fatal degree.

The outermost cells in the epidermis are continually being thrown off and replaced by new cells from below. On these superficial cells the dried perspiration collects, mixed with dust and dirt from the atmosphere, the whole forming a film that chokes the opening of the sweat glands, commonly known as the "pores of the skin" and interferes with their activity. To maintain health this film should be removed by means of a daily bath, followed by brisk rubbing which aids in its removal beside stimulating the activity of the sweat glands. Of course there are plenty of people who do not take a daily bath and yet seem to enjoy excellent health, the dried epidermis being removed to a certain extent by the friction of the clothing. But without daily attention to the skin the sweat glands are always sluggish and more or less choked, which means that the kidneys are forced to undertake more than their share of the excretion of the body and in the long run they suffer from overwork. We do not know how many of the people who neglect the care of their skins and yet seem in good health suffer ultimately from disease of the kidneys that might have been avoided.

But there is a wider significance in personal cleanli-

ness than appears in its physical relations. A strong moral influence tending to self-respect lies behind the daily bath, and the importance attached to bathing in many countries as a part of religious observances and ceremonial rites probably had its origin in the perception of this fact.

A full bath, once in every twenty-four hours, is a duty incumbent upon every girl and she should take pains to acquire the habit in girlhood when she assumes the charge of her own toilet, if it has not been formed before. The only question in regard to the bath is what kind it shall be and what is the most convenient way of taking it.

A cold plunge into a tub on first getting up in the morning is the ideal thing, but not every girl is strong enough to stand it and not every girl can command the requisite facilities for it. Any doubt as to whether the strength is equal to a cold plunge bath is determined by its after-effects. No bath is properly taken unless it is followed by brisk friction over the whole body, in order to remove the dried flakes of epidermis and stimulate the circulation. On first coming out of the water the skin should be carefully dried with a soft towel that absorbs moisture easily, and this should be followed by a vigorous rubbing with a dry towel, as rough and coarse as possible or else some sort of flesh-brush. When the rubbing is finished, the skin should be red and the nails pink, and there should be a

sensation of warmth and pleasant exhilaration. If, in spite of vigorous friction, there is a feeling of chilliness, and the skin is pallid, with the appearance known as "goose-flesh," while the lips and nails are blue, the bath has done more harm than good.

It is a pity, however, to give up a cold plunge bath on the first failure, for the want of success may be due to imperfection in some of the details which can be remedied. Some women can stand a much colder bath than others. Water between 65° and 75° F. is distinctly cool and many people get a good reaction after a bath at this temperature, who cannot stand a lower one. The temperature of the room in which the bather dresses after the bath has a decided influence on the reaction. The bathroom itself need not be warm, if the bather can go directly into another of a higher temperature, but to dress in a cold room is very likely to check the reaction.

The towel used for friction must be absolutely dry, for friction with a damp towel is almost worse than no friction at all. This is why two different towels must be used. The temperature of the body when the bath is taken also has an influence on reaction. A cold bath should never be taken when the body is cold. The best time for it is just after rising in the morning, while the warmth from sleep still remains, for if an interval is allowed to elapse before taking the bath the body will have an opportunity to become chilled, and

whenever this occurs the reaction will very likely fail.

If all these minor matters are adjusted and the plunge bath is still a failure, it may be possible to make it a success by a gradual effort. A tepid bath, with water between 80° and 90° F. may be tried at first, and the temperature reduced a trifle each day, until the point is reached below which the bather is chilly afterwards. By this means it is sometimes possible to take a bath at a temperature which, at first, would be entirely too low. Coarse salt, if possible sea salt, added to the water, is sometimes an aid to reaction. But if every effort to take a cold plunge bath has been made without success, it had better be given up. No benefit will result from it if it is not followed by a healthy reaction, and it may do a great deal of harm.

The next best thing to a cold tub bath is a cold sponge, and there is hardly anyone who cannot take it. Some people, however, prefer a tub bath in tepid water, but in this case there is little or no reaction.

There is no reason, as was said elsewhere, that a cold sponge bath should not be taken during the menstrual period, though it may be better not to take a cold plunge.

But cold baths, refreshing and healthful as they are, do not altogether satisfy the demands of cleanliness. If the skin is to be kept perfectly free from dead epidermis and dried secretions, a warm or a hot bath

must be taken two or three times a week. The best time to take such a bath is just before going to bed at night, when the skin can safely remain relaxed for some time. There is a certain prejudice against hot baths, because they are believed to be unduly depressing to the nervous system, but unless the bather remains in the water a very long time there is no danger of such a thing. The same friction should be used as after a cold bath.

There seems to be a great diversity of opinion as to the advantages and disadvantages of using soap upon the skin, some persons claiming that it does harm, while others are sure that it does good. The reason for these differences probably arises largely from the fact that there is a good deal of difference in the effect of soap upon different skins, so that some skins are benefited by it, while others are not. The quality of soap also has a good deal to do with its effect upon the skin.

Soap is composed of an alkali (potash or soda) and an oil. The alkali is useful in lessening the dead epidermis and furthering its removal, but if it is in excess the skin becomes harsh and dry. Cheap soaps often contain too much alkali, besides other ingredients injurious to the skin. It is important to secure a good soap, such as the renowned Pears', or the old-fashioned castile. If the skin is harsh and dry after a really reliable soap has been used, there is reason to

conclude that it will not bear the use of soap except occasionally. But such skins are not common.

Unfortunately, bathrooms with set tubs and hot and cold water fixtures are not at everybody's command. Not a few girls, who live in boarding houses, or other crowded quarters have only a limited use of a bathroom, not to mention those who reside in remote country districts where what are known as "modern conveniences" have never been introduced. Girls who have to contend with difficulties of this kind may take comfort from Miss Florence Nightingale's remark that "a bath can be taken in a tea-cup if the intentions are good." Certainly it can be accomplished with extremely limited facilities.

There are various kinds of tubs which can be used in a bedroom. The old-fashioned "hat-tub" answers the purpose quite well, but it takes up a great deal of room. A small-sized zinc or tin tub, shaped like a pie-dish and about five or six inches deep, can be had for small expense and is easily disposed of when out of use. Papier maché tubs of this shape are very good and delightfully light, but they are rather more expensive. Some of the latter are so constructed that they can be shut up when not in use. Whatever kind of tub is used, except the hat-tub, requires some protection under it to prevent wetting the floor. The best thing is the sheet of india-rubber cloth sold for the purpose, but if this is too expensive, the white enamel

cloth used to cover kitchen tables makes an excellent substitute.

It is not necessary, however, to have a tub in order to take a bath. A basin, a pitcher full of water, a piece of soap, a sponge or a washcloth, and a couple of towels, are really all the essentials. Then, if a piece of enamel cloth is spread upon the floor to stand on, it is easy to wash the whole surface of the body with as much thoroughness, if not as much luxury, as in a tub. If possible, it is well to have two basins, one filled with soapsuds and the other with clean water for rinsing.

The skin of the face, otherwise the *complexion*, requires special care, because it is the most exposed part of the body, a fact which few people realize. All parts of the body, except the face and hands, are habitually covered by clothing, and even the hands are protected out-of-doors by gloves, but the face has nothing to shelter it from the dust and dirt of the atmosphere, as well as the roughening effects of wind, except a thin veil.

The face should be washed twice in every twenty-four hours and one of these times with soap. There is a common impression that soap is bad for the complexion, even though it may be good for the rest of the body, and people who employ it habitually on a little baby's tender skin will avoid the use of it on their faces on the plea that the skin there is too delicate. A

moment's thought shows the inconsistency of this standpoint. The trouble is that people do not know, or if they do know they forget, that the sweat glands are abundant on the face, and as the face is peculiarly exposed to the dust and dirt of the atmosphere the openings of the glands are liable to be choked. There is really no place in the body, therefore, where the dead epidermis and dried secretions require removal so greatly as on the face, and soap assists greatly in the process, besides stimulating the sweat glands to activity, which does more than anything else to keep the complexion clear and soft. The medicated soaps, from which so much benefit is said to be derived, owe their action in large measure to the cleansing and stimulating effects which any pure soap can furnish as well. But it is characteristic of human nature to put confidence in whatever is troublesome, unusual, and expensive.

At night the face ought to be washed with water as hot as can be borne and a good soap. The washing should be kept up for several minutes and the face must be dried afterwards with a *soft* towel. The coarse towels, which are so good for the rest of the body, are not desirable for the face. If the complexion is rough or shows a tendency to pimples, it is a good plan to hold the face over the steam from a basin full of boiling water for five minutes or so. In the morning the face should be washed in cold

water, and soap is not then necessary, if it has been used the night before.

If the complexion is muddy or rough, or has occasional slight eruptions, careful attention to these directions will quite likely relieve the trouble entirely; if not a physician should be consulted, and if possible, a skin specialist. The old-fashioned idea that a disordered skin in young girls should always be left to nature, is open to the objection that only a physician can say when it may safely be left alone and when active treatment is necessary.

Cosmetics should never be used without a doctor's sanction. Many of those on the market contain harmful ingredients, and even if they are harmless they tend to clog the openings of the glands and check their activity. The same objections apply to face powders though in a less degree. Their regular use is to be condemned, but a harmless one may be used occasionally, especially in very hot weather, when the skin has a tendency to become moist and shiny. The best face-powder is one prepared at home from powdered starch, or rice-powder, or corn-starch, with the addition of a little powdered orris-root, if a perfume is desired. Talcum powder, however, is quite harmless.

In old times it was considered a girl's duty to protect her face from the sun, the wind, and the rain. Now-a-days, the freedom of outdoor life has done

away with all such precautions. No doubt this is a great advantage, and if girls have lost something in the delicacy of their skins, they have gained more than its equivalent in health. It may be, nevertheless, that we have gone a little too far in the other direction. Plenty of fresh air and active exercise can be obtained without dispensing with a hat for the entire summer. The tanning of a whole season passes off in the winter, but the skin is never quite so smooth and fine as it was before. Strong, harsh winds in the winter are very bad for the skin and the face should always be protected from them by a veil.

Hair is a modification of the epidermis. Each individual hair consists of a shaft, which is the visible part, and a root embedded in the skin. The root lies in a little follicle supplied with nerves and blood vessels, as well as with two little glands, called sebaceous glands, the secretion from which keeps the hair smooth and supple. The shaft of the hair is circular in shape, but sometimes the circle is a little imperfect at different points, owing to a flattening of its surface, just as a piece of lead pipe may be flattened and indented at intervals. These imperfections of the shaft cause the hair to bend easily at the flattened places, producing the curl which is so much admired.

A long, thick suit of hair is a beautiful thing in the abstract, but in civilized society it cannot be displayed in its natural state and the length and thick-

ness upon which its beauty depends make its arrangement difficult and often clumsy. For practical purposes hair of moderate length and thickness, which grows prettily and can be arranged easily and gracefully, is a much more valuable asset, and the beauty of such hair depends largely upon the care taken of it.

Once in every twenty-four hours, the hair should be brushed carefully, in order to remove the dust that accumulates in it from the surrounding atmosphere and stimulate the sebaceous glands to activity. There is a belief among some people that brushing is a bad thing because it pulls out the hairs. If the hairs do come out under the process of brushing, it is because the brush is too stiff, not because there is anything injurious in the process itself. Coarse, thick hair needs a stiff brush, while for fine, thin hair a soft one is much better. Wire brushes are always to be avoided, but a bristle brush is, in many people's opinion, of great service. It takes all the dust out of the hair and off the scalp, and stimulates the roots most thoroughly. Without brushing the hair can never be kept in a really healthy condition, since its healthfulness depends upon the activity of the glands at the root, and these require constant stimulation. Rubbing the skin at the roots of the hair with the fingers is sometimes suggested as a substitute for brushing, but it can never really fill the same place, because the amount of time required to give the same stimulation

by friction with the fingers is more than most people can command; moreover, the hairs themselves receive no attention from the massage, whereas the brushing keeps them clean and smooth. A comb is useful for removing tangles and in the arrangement of the hair upon the head, but it can never take the place of the brush.

From time to time the hair requires to be washed, but no exact rule can be given as to how often. Girls who live in the city, where the surrounding atmosphere is full of dust and smoke, need to wash their hair oftener than those who live in the country, where the hair is free from such impurities. The nature of the hair itself also enters into the question. Heavy, glossy hair requires washing at more frequent intervals than that which is dry and brittle. All that can be said positively as to the frequency of hair washing is that it ought to be at intervals of a week to a month.

Sometimes it is impossible, for one reason or another, to wash the hair without risk of taking cold, and when this is the case a dry shampoo is useful, though it can never take the place of washing and shampooing together. To give this kind of shampoo, the hair must first be thoroughly brushed, after which powdered orris root is rubbed into the roots with the tips of the fingers, very slowly and carefully, until the whole surface of the head is covered. At the end of half an hour the orris root is brushed out and with it

comes the dust accumulated on the hair or the skin of the head. If the hair is harsh and dry it is a good plan to make the powder of equal parts of orris root and corn-meal.

Some hair is always thin and rough from a deficiency of the secretion in the glands at its roots. This sort of hair has a tendency to come out; in fact, whenever hair begins to get thinner it is also rough and harsh. The only cure for this state of things is to stimulate the sebaceous glands, and one of the best means of doing this is brushing. Miss Martineau, the authoress, tells us in her autobiography that she endured much distress and mortification in her youth from the thinness and roughness of her hair until an aunt suggested that the trouble might arise from the fact that she used a comb entirely instead of a brush and the suggestion being adopted proved a signal success. If persistent brushing does not stop the hair from coming out it is a good plan to get a prescription for a hair tonic from a doctor. These tonics are all based upon the principle of stimulating the glands and contain something which serves that purpose.

A Japanese physician has recently shown that if a hair is examined under the microscope soon after an illness it is seen to be thinner along the part of its length which corresponds to the duration of the ailment. When the illness is accompanied by fever all the hair on the head generally comes off, because the

rise of temperature stops the secretion of the sebaceous glands. New hairs, of course, begin to grow as soon as the illness is over and the glands recover their activity, but all that can be done for the old ones is to get rid of them with as little inconvenience as possible. Cutting the hair close to the head or even shaving the head is much recommended as an effectual means of securing a new crop, but such a proceeding has really no influence at all upon the growth of the new hair. Indirectly, cutting the hair is a good thing to do, because it is much easier to stimulate the roots of the new hairs when the old hair is short than when it is long. A girl who is young enough not to mind wearing her hair short for a few months had much better have it cut as short as possible, and then every morning, when she takes her bath, she can wash her head and rub it briskly just as a man does. If she wants to apply a hair tonic, she can do so much more readily and effectively when the hair is short. An older girl, who objects to wearing her hair short, can let the old hair remain while the new crop is growing up without any danger of checking the new growth. There will usually be enough left to make a presentable appearance until the new hair is grown out and can take its place. Shaving the head is always a mistake. It gives trouble and inconvenience without doing any good to the new hair.

The *teeth* as well as the hair are a modification of

the epidermis. The care of them is of great importance to health, as well as to personal appearance, and girlhood is the time when such care is particularly needed. Defective teeth cause a great deal of pain, interfering with sleep and work. They also limit the capacity to masticate food which leads to indigestion and deficient nutrition with consequent impairment of the general health. An examination of the teeth of the children in the public schools at Andover, Mass., showed that, taking weight as a standard of health, the children with good teeth surpassed the children with bad teeth in weight by an average of two and seven-tenths pounds.

The great cause of decay in teeth is the accumulation of tiny fragments of food, especially of meat, between the teeth and in the irregularities of their surfaces, and the process of decay occurs more frequently and proceeds more rapidly in girlhood than in late life, so that the care of the teeth at this time of life is a matter of special importance.

In caring for the teeth, the ideal plan, of course, is to brush them after each meal, but this method requires an amount of time, attention and opportunity which not many girls can give. They can be kept in excellent condition by caring for them twice a day.

Brushing the teeth with a moderately stiff brush is one part of the care to be given them. Some kind of wash or powder should be used in brushing, and

powders are to be preferred of the two, on account of their polishing effect. There are various preparations sold by druggists, any one of which will answer the purpose, but the ordinary prepared or precipitated chalk is as good or better than anything else, beside being less expensive. Some antiseptic solution, such as *listerine*, for a mouth-wash, is desirable.

But a toothbrush, no matter how carefully and thoroughly it is used, cannot get between the teeth, nor into all their irregularities, and these places are exactly where attention is most needed. Decay of the teeth is caused by the action of bacteria, and these find a fertile soil for their growth in the fragments of food that collect between the teeth or in their irregularities. The only way to remove these fragments and keep the interstices clean is to pass something between each two teeth at least once in every twenty-four hours, preferably at night, because there will then be a long interval before food is again taken. A certain kind of thread, especially prepared for the purpose, called "dental floss," is sold by druggists, but in the long run it is rather expensive. A good substitute for it can be made by buying some skeins of linen thread, cutting them into suitable lengths and waxing these with a piece of beeswax. The thread and the beeswax must both be perfectly new and clean.

In addition to the daily care of the teeth they ought to be inspected at intervals by a dentist and any de-

cayed teeth should be filled or extracted. It is most important that the teeth should receive proper care in this respect during girlhood. Not only is the process of decay more frequent and more rapid in early life, but the second teeth, which are then just come or coming, often require mechanical aid to make them straight and even. The size of the jaw is smaller in these days than it used to be many generations ago when mankind ate coarse food and needed more strength in the teeth and the jawbone. The number of teeth, however, remains the same, so that it begins to be something of a difficulty to find room for them all in the modern jaw. This difficulty reaches its height at about fourteen or fifteen, when the four last molars, known as "wisdom teeth," begin to appear. Sometimes these teeth come rapidly, almost all at once, in other cases they appear one by one and so slowly that it is a matter of five or six years before they are all in place. But whenever they come, they are apt to crowd the other teeth, and it becomes a serious question whether some teeth ought not to be extracted in order that the others may be more serviceable and more regular in appearance. No one but a dentist can decide upon this matter and it is most important that he should treat the teeth while the bones of the jaw are still young enough to respond easily to whatever measures he may adopt. Later in life, when the bones are completely hardened, nothing

can be done, for if teeth are then drawn the others will not move so as to fill up the space and make more room.

It is very important also that cavities in teeth should be filled without loss of time, for they cause more or less pain and interfere with a girl's work as well as her pleasure. Moreover, the decay proceeds so rapidly at this age that unless it is promptly arrested the tooth may speedily be past filling and there is nothing for it but extraction. A tooth too much decayed to be filled must be extracted at once, for it affords an easy entrance to disease, beside being a great source of suffering.

The expense of dentist's work is sometimes a difficulty. But the care of the teeth ought to be considered in the light of a duty, not a luxury, and other demands upon the purse, not absolutely essential, should be sacrificed to it. If it is really impossible to meet the expense, there is always a way open, at any rate to those in large cities, which ought to be employed more than it is. The free dental dispensaries offer attention without charge or with only a nominal one, and the work there is reliable. It is true, of course, that it is done by young dentists or students who have not much experience, but they are under careful supervision from older men, and there is really much less danger of neglect or failure at their hands than is often present with an elderly man of

large experience and reputation who has grown careless with years and success.

One of the most important points in a girl's toilet, or a boy's either, is the care of the *hands* and *nails*. Even a very ordinary hand can be made attractive if it is well cared for and a pretty hand loses all of its beauty if it is not. To keep the hands in nice order they should be washed every night on going to bed with warm water and a good soap, and if they are inclined to be rough or chapped, a little glycerine or glycerine and water should be rubbed into them while the skin is still moist from washing. It is a good plan to apply the glycerine after every washing throughout the day. There are many preparations of glycerine combined with the fancy waters which are reliable and agreeable. Sometimes the skin at the ends of the fingers and the edges of the nails has a tendency to crack and peel. The best remedy for this state of things is to apply vaseline to the broken places on going to bed at night and then draw on a glove finger, or, if necessary, the whole glove, which must remain in place over night. The most obstinate cases can be relieved in this way after a few nights.

The most important point in the care of the hands, of course, is the *nails*. These require to be brushed with a stiff nail brush whenever the hands are washed, and once in every twenty-four hours they should receive special attention. The best time for this is di-

rectly after the hands are washed at night. The skin around the nail must be pushed back by the tip of the finger covered with a soft cloth. This is better than using any kind of sharp instrument, for it is not so likely to break the skin and cause a "hang nail." The systematic care of the hands will almost always prevent hang-nails, but if one appears it ought to be cured as soon as possible, because they afford a good opening for infection. A hang-nail must be clipped as close to the finger as possible and some sort of ointment applied, after which a glove finger or a cot should be worn over the finger for a day or two until it is well.

The nails should be cut immediately after the hands are washed, while they are still soft and pliable and the curve of the nail must be carefully preserved in cutting them. For this purpose a pair of curved nail scissors is almost a necessity, as it is extremely hard to keep the curve with a straight pair, even if they are small. The length of the nail and the shape of the edge are matters of taste, but it is certainly a pity that girls who have to put their hands to many uses should insist on having their nails as long as many of them do.

Nails are best cleaned with a little piece of sharpened wood, which is much better than the end of scissors or a penknife. If there are little rough places on the edge of the nail after it is cut, they can be smoothed by means of a little bit of sandpaper or fine pumice

stone. Finally, the nails are polished. It takes some little time to put a polish on nails which have never been polished before, but when the polish is once acquired it does not require much time or effort to keep it up. A little nail powder is of assistance in getting a polish, but it is not essential; a perfectly satisfactory polish can be obtained with nothing but the polisher and pains. A large heavy polisher is the best, but the smaller ones answer very well. Even a scrap of chamois leather held over the tip of the finger will accomplish the end in view.

Particular attention should be paid to the *feet* when the daily bath is taken. They require more effort in cleansing than any other part of the body, especially now that girls wear low shoes, which allow dust and dirt to sift through, for so much of the year. Great care must be taken to see that the spaces between the toes are thoroughly cleansed, for perspiration is peculiarly apt to collect there. These spaces must also be perfectly dry, for moisture in that situation is a fruitful source of soft corns.

The toe-nails, like the finger-nails, should always be cut after a warm bath, while they are soft and easy to cut. There is a marked difference, however, in the cutting of the nails of the toes and the fingers. So far from cutting toe-nails with regard to the curve, as in the case of the finger-nail, toe-nails ought to be cut nearly in a straight line, as a precaution against

the condition known as "ingrowing nail," when the nail, usually that of the great toe, grows deeply into the flesh on one side. It is a most painful affection, and if not relieved at once, the area around the nail may become inflamed and even suppurate, causing a terribly sore foot. If the nail shows any indications of growing too deep on one side, a triangular piece should be cut out of the middle of the edge, the apex of the triangle being towards the root of the nail. The two edges of the opening thus made instinctively incline towards each other, as the nail grows outward, and in their approach the side cutting into the flesh is drawn out.

The present fashion of wearing large and easy shoes has done much to overcome the old-fashioned torment of *corns*, which was particularly common among young girls because the vanity natural to youth led them to wear tight shoes when tight shoes were the fashion. Formerly, too, a really well-fitting shoe could only be obtained by having it made to order at considerable expense. Now it is possible to get factory-made shoes which are well-shaped and neatly finished. Still, corns are not altogether things of the past.

A corn is nothing more or less than a hardening of the epidermis due to pressure of the shoe on one particular spot. When a corn is discovered, the shoe must be changed, no matter how inconvenient it may

be to do so. It is foolish to consider expense, for the loss of a pair of shoes is a small matter compared to the torture of the corn, beside which, if the source of irritation is permanently relieved, the corn can probably be permanently cured, whereas if the foot is obliged to go on enduring the pressure the corn becomes more and more difficult to get rid of. The best way to treat a corn is to soak the foot in warm water for a considerable time, say half an hour, and then peel off as much of the corn as possible. If the foot has been well soaked, a considerable amount can be removed in this way. After all that is possible has been done by peeling, the hard central portion must be cut out with a sharp knife, and, finally, a corn plaster is put around the cavity from which the corn has been cut, and worn until the tender spot has become normal.

Soft corns, which form always between the toes, can generally be cured by keeping the place around them absolutely dry. The best thing for this purpose is chalk, either the prepared chalk used for a tooth-powder, or a piece of ordinary blackboard chalk, ground fine. If the space between the corn and the next toe is kept faithfully dusted with the chalk, the corn will gradually dry up and rub off.

If the foot is irritated by the shoe or the stocking the cause of irritation must be removed at once. When this is done immediately, before the skin is broken, the

place will get well without difficulty, but if the irritation is allowed to go on until a blister has formed (which happens in an incredibly short time) it may be weeks before the foot is really well again, for it is almost impossible to keep the blister from breaking with the formation of a raw surface. If such a raw surface does form, the best thing for it is to keep it dusted with a powder of the subnitrate of bismuth, a few ounces of which can be obtained from any druggist. A piece of soft old linen or cambric must be kept over the powder.

The care of the *eyes* is a matter of really vital importance. No girl, no matter how strong her eyes are or appear to be, can afford to neglect the care of them. Unfortunately, the effects of want of care do not always become immediately apparent, and it is hard to induce girls to take proper precautions when they feel no present inconvenience or discomfort.

The bad effects of eyestrain at school and the various ways in which the eye can deviate from normal are more suitably considered in connection with the question of the school work from which much of the eyestrain originates. But this is a good place to say a word in regard to the care which a girl herself can take of her eyes in daily life.

The symptoms of eyestrain may be either direct or reflex. The direct symptoms vary from a mere sensation of fatigue and effort, after using the eyes

steadily for some time, to actual pain with burning, itching, and watering. Sometimes the eyes look red and irritated, sometimes they have a strained faraway look. It may be that in reading the type will run together, or certain letters which resemble each other, like c and o, cannot always be distinguished. One of the earliest signs of eyestrain is a feeling of irritation on rising in the morning when the eyes have been worked at night for too long a time or by an imperfect light. The sensation of little grains of some fine substance under the lids is another sign of strain.

Of the reflex or indirect symptoms, headache is by far the most common. The headache may be a dull pain over the eyes or on the top of the head, or it may take the form of prostrating attacks of sick headache. In any case of constantly recurring headache in young girls not attended by failure of the general health an oculist ought to be consulted. The reflex symptoms of eyestrain are sometimes quite remote from the eyes. Indigestion is not uncommon, and nervous symptoms of various kinds are associated with it. Sometimes eyestrain is responsible for the most profound depression which cannot be accounted for. Cases of melancholia have been known in young girls which disappeared when the eyes were relieved by proper glasses.

Whenever there is any reason to think the eyes are strained, and whenever there are symptoms, in a girl constantly using her eyes, that cannot be accounted

for, an oculist should be consulted. I say emphatically an *oculist*, not an *optician*, because one of the most fruitful sources of eye trouble is the consultation of opticians instead of persons especially trained in the knowledge of the eye. It is a great mistake to think that because a man is capable of preparing glasses from an oculist's prescription, he is competent to pronounce upon the condition of the eye itself. A real understanding of the eye in health and disease requires all the resources of a general medical education, as well as a special training in the anatomy, physiology, and diseases of the eye itself, and no one who does not possess this can possibly be fit to undertake eye practice.

In the ordinary daily care of the eyes which rests in the hands of their possessor, the first thing to be remembered is not to let water touch the eyeball in bathing the eyes and not to keep the eyes open under water. Some people are in the habit of boasting that when they wash their faces in a basin of water they keep their eyes open, and nothing worse for the eyes could possibly be imagined.

A sufficiency of light, properly adjusted, is necessary to the preservation of eyesight. The direction of the light ought always to be from behind over the left shoulder. If it comes over the right shoulder the right hand casts a shadow that comes between the light and the work, and if it is from directly behind,

the person, to use the common phrase, is "in their own light." Light coming from directly in front is worst of all, because it dazzles the vision.

The same rules apply to artificial light, but other points must also be considered in its arrangement. An ordinary gas-burner, whether it is in a chandelier or a side-fixtue, is always unsuited for reading or writing, because it flickers incessantly, and the first consideration in artificial light is that it should be steady. For near work at night there should be some kind of shaded droplight, such as the argand burner, with the rays falling directly upon the work. One of the best possible lights for night work is the old-fashioned student lamp used with kerosene oil. It has one great advantage over more modern appliances, in that it can be used anywhere irrespective of the introduction of gas or electric light. Of course, some of the new conveniences, such as the electric bulbs, shaded and arranged to throw the light over the work, give as good a light as the student lamp and are free from its disadvantages, but there are hosts of places where the newest appliances are out of the question and yet night work has to be carried on for the greater part of the year. In all cases of this kind nothing does as well as the student lamp. The great objection to it is that if it is not attended to with the utmost care it has a disagreeable odor and sometimes drips oil unexpectedly. But this inconvenience can always

be prevented by care, and the benefit to eyesight makes it worth while to ensure this care by taking the lamp under one's own supervision.

Finally, there is one point in the care of the eyes in which girls are peculiarly apt to offend, and that is reading through a spotted net veil. The fine lines in the mesh of the net are bad enough, but when to these are added a number of round spots, the tantalizing effect is one of the most harmful things in the world. Chiffon veils are also objectionable, because they are woven with sufficient closeness to make it a continual effort to see through them for anything as close as reading.

Sometimes a foreign body gets into the eye. Such bodies are of two kinds: penetrating and non-penetrating. A penetrating foreign body is one which has actually penetrated the substance of the eyeball. It is always a serious thing and must be brought to an oculist without loss of time, since it cannot be removed by an unskilled hand. The ordinary non-penetrating body, such as a cinder, is easily removed and everyone ought to know how to do it for another person. It is almost impossible to do it for oneself.

The lower lid is drawn down by one finger and the foreign substance may then become visible at once. If it does not, the upper lid must be turned back. To do this the patient is told to look downward and the edge of the upper lid is taken hold of by the thumb

and forefinger of the right hand, after which it is drawn forward and downward, away from the eyeball, and then upward, turning it back over the thumb and forefinger of the left hand, which are held stationary upon the lid. The foreign body can then be seen, if it is there, and removed by a delicate touch with the tip of a handkerchief corner or a wisp of absorbent cotton. It must always be remembered that the irritation set up by the foreign body will not disappear for a little while after its removal, and sometimes the sufferer will insist that she knows the irritating substance is still there, because she continues to feel such discomfort. The only thing to be done under these circumstances is to wait quietly until the irritation set up by the intruder has disappeared. A cold compress over the eye will sometimes relieve the suffering and help to make the irritation subside.

The *ear* consists of three divisions, namely, the external, the middle, and the internal ear or labyrinth. The external ear, which is the part outside of the head and the passage leading from it, is the only part within our reach and therefore the only part for which we can directly care. But the healthy condition of the middle and internal ear depends largely upon the care bestowed upon the outer part.

In washing the outer ear, great care must be taken not to introduce hard objects of any kind into the external opening. The tip of the finger covered by

a soft cloth, or one of the little sponges mounted on the end of a stick, which are sold by druggists for the purpose, are all that should ever be used for cleansing purposes. Cleanliness of the external ear can be perfectly maintained by either of these measures, and the deeper portions can take care of themselves. Clumsy and over-zealous efforts at cleanliness are sometimes the cause of ear-trouble for which no explanation can be found.

In the passage leading from the outer portion of the ear are glands that secrete a thin yellow fluid which thickens into paste and accumulates upon the skin lining the outer ear. The uppermost cells of the epidermis covering the outer ear are constantly being shed, as they are in all other parts of the body, and are finally cast off at the exterior with the wax adhering to them, their movement outward being assisted by the little stiff hairs on the inside of the external ear and also by the movements of the jaw. A healthy ear ought not to secrete more wax than is needed to keep the cast-off cells together and if it is secreted in larger quantities than this the ear is not perfectly healthy. An aurist, or at all events, a physician ought to be consulted for this condition, if it is persistent. It will probably be necessary to syringe the ear and this should never be done by an unskilled hand. If it is impossible for the patient to come to the doctor as often as is necessary for this purpose, he should teach

some members of her family how to use the syringe. Under no circumstances should drops be put into the ear with the intention of softening the wax and assisting in its removal. It only makes the wax swell up and increases the difficulty. The little sharp instruments known as *ear scoops*, which are sold for the purpose of extracting hardened wax, must *never* be used. A really serious injury to the middle ear may be done by them. Occasionally it happens that a living insect finds its way into the ear and causes intense pain by its movements. A few drops of sweet oil or chloroform poured into the ear will kill the insect and stop the pain, after which it can be syringed out at leisure.

Sometimes water enters the ear while bathing and causes a great deal of discomfort. It can be easily disposed of by the following method. Take firm hold of the upper part of the external ear with the finger and thumb of the hand on the affected side, then incline the head well over towards that side and stamp the corresponding foot violently. After one or two efforts the water will trickle out at the external openings.

Earache is a common ailment but it may be a most serious one. Relief from the pain can usually be obtained by means of heat, applied by a hot water bag or by pouring water as hot as can be borne into the ear and letting it run out again. The old-fashioned

Southern custom of applying a hot sweet potato or yam was based on a sound scientific principle. Ear-ache must never be neglected, and if it is not permanently relieved in a short time an aurist should be consulted.

A discharge from the external ear is another thing which must receive prompt attention. It may be quite harmless, and it often is so, but, on the other hand, it may be the outward and visible sign of some inflammation which, if neglected, will result in permanent deafness. A great many cases of deafness might have been prevented, if the discharge that preceded them had received prompt attention, especially after scarlet-fever, which is a disease when the ears are often affected. If a discharge appears in the course of an acute disease a specialist ought to be called in at once. It is most unwise to think that the discharge is but a symptom that will disappear as the disease subsides. It will very likely disappear, but by the time it does so irreparable mischief may have been done that remains behind it.

CHAPTER IX

DAILY LIFE DURING SCHOOL DAYS

Influence of home on health of schoolgirl—Influence of school on health—Social life of schoolgirl—Amusements—Relations with other sex—Reading.

THE daily life of a girl between twelve and eighteen contains most of the claims and interests belonging to other stages of existence, in forms adapted to her age and intelligence, but there is one respect, and that a very important one, in which this period differs from any other, namely, the prominence in it of formal education. Fully two-thirds of a girl's waking hours during these years are passed in the school room, her home life, as well as her outside interests and pleasures, being subordinated to the claims of her education. There can be no doubt that when the psychologists and others interested in the study of girlhood have collected sufficient data on the subject of education to justify definite conclusions, we shall see material changes in the school curriculum for girls adapted to their mental peculiarities at this period of their life, but we are not yet in a position to discuss the probable nature of these changes. Our knowledge

of the physical side of girlhood has advanced sufficiently, however, to throw considerable light on the relation between health and education and the question of preserving a girl's health during her school life is one that we are better fitted to discuss than we were before the present interest in adolescence.

The responsibility for keeping a girl in good physical condition during her school life rests with both the home and the school, but the home is undoubtedly the more directly answerable of the two, for the great essentials of food and sleep are under its control. To say that a schoolgirl cannot keep up with her studies without a plentiful supply of nourishing food would seem a mere platitude, were it not that, as a matter of fact, not a few girls suffer for want of it, not because they do not have enough to eat, but because they do not eat what is provided for them. Recent investigations into the public schools in some of our large cities have shown that many children are habitually under-fed, because their parents are too poor to feed them properly, but this class of cases does not concern us here, since in families where circumstances are so poor as this the girls are obliged to leave school and go to work by the time they are twelve years old. But, strange to say, this difficulty is one that exists with girls whose parents are well-to-do, or even wealthy. It is a problem that confronts the private, as well as the public schools, and some of the



most earnest remonstrances in regard to it are preferred by teachers in private schools where the pupils come from wealthy and luxurious homes.

No doubt one of the factors in the underfeeding of schoolgirls is the deficiency of appetite and fancy for unwholesome articles of food which are among the characteristic physical disturbances of girlhood; difficulty in adjusting the schoolgirl's midday meal to the hours obligatory on the rest of the family is another factor; while a third is the haste and scramble to get off in the morning, which interfere with a comfortable breakfast. These may seem trifling things, nevertheless, their presence day after day for a period of years, at a time when growth is most rapid and the nervous system is undergoing the strain that accompanies the establishment of the reproductive function is quite enough to account for a great deal of defective nutrition.

Difficulty in arrangement of the midday meal is probably the greatest of the three. In the family of a working man dinner is over before the High School girl gets home, and the dinner put away on a plate and saved for her is so dried up and unappetizing, that, unless she is to imitate the man in Mr. Howell's novel, who took his food in an impersonal manner as if he were feeding an engine, she will probably leave most of it untouched. Eating by herself, too, is not only bad for her digestion, but most discouraging to her

appetite. But the girl in wealthy families often fares no better. Her family probably dine late and lunch between one and two. When the schoolgirl gets home everyone has finished luncheon, and as it is more or less a movable feast, it is not considered of enough importance to make any special effort about it for a schoolgirl, so she picks up what she can, and in the absence of any supervision, eats only what she fancies.

It is from deficiency of breakfast, however, that the girl in wealthier homes probably suffers most. The social side of such a girl's life is apt to make demands that keep her up later than she ought to be, so that she oversleeps herself in the morning and has no time in which to eat her breakfast. Moreover, such a girl's mother, whose time is often much occupied in social duties, is frequently late in rising, and there is no one to see that the child has her breakfast in an orderly manner. Not a few teachers in private schools testify that it is a common thing for a girl to come to school without any breakfast except a cup of coffee hastily swallowed and a roll or scrap of toast, eaten with the haste of a Passover Supper. By the middle of the morning, of course, she has become so tired and languid that her mind wanders, and when inquiries are made as to the cause of her inattention the facts concerning her breakfast are elicited. It is no wonder that as time goes on her digestion fails,

and she begins to have headaches, and then her parents, without inquiring into the matter, conclude that she is overworked at school.

All girls who are still growing, whether they make a good breakfast or not, ought to have a light luncheon during the midday recess at school. But, unfortunately, when the selection of this lunch is left in the girl's hands, it is apt to consist of pie, doughnuts, cake, candy, and especially pickles, for which she has the craving characteristic of her age. Even if her mother supervises the preparation of her lunch basket and she is sent off provided with simple and nourishing food, she will probably exchange half of it for objectionable dainties in another girl's lunch basket, or even go out and buy them at some neighboring shop. This difficulty has proved such a real and substantial one that many schools now provide a lunch in the school building where the girls can get a suitable and comfortable meal at small expense. Whenever this plan has been adopted, there has been a great improvement in the health of the pupils.

The final responsibility as regards a schoolgirl's meals, however, must rest with her mother. It is impossible, of course, that the requirements of other members of the family shall be adjusted to the necessities of one, or even of several schoolgirls, and it may seem a great deal to ask of a mother that she shall find time in an often over-busy life to give personal

attention to the meals of a girl of fourteen or fifteen, as she would to those of a girl of four or five. But if she will make it her business to see that her daughter eats a comfortable breakfast in the morning, and is provided with a suitable school luncheon or the money to buy one; if, which is most important of all, she will superintend the putting aside of her midday meal and then, whenever it is possible, sit with her while she eats it, not forcing her to take the food, but beguiling the time so that she disposes of it unconsciously and without undue haste, she will do more than can be accomplished in any other way to keep her daughter in good health while she is at school.

Next to the question of food, sleep is the most important factor in the health of the schoolgirl, indeed it is hard to say which of the two is more essential to her welfare. Abundance of sleep is peculiarly necessary in girlhood, especially during its earliest years, because the strain upon the nervous system occasioned by the development of the reproductive function and the establishment of menstruation demands long periods of repose from the excitement of external stimuli, while the rapidity of bodily growth requires the opportunity of building up tissue. The common custom of curtailing the night's rest just as the girl comes to this time in her life is most unfortunate. Until the period of puberty is over, at any rate, the allowance of sleep ought not to be lessened. Ten hours is

considered the proper amount for the later years of childhood and ten hours it ought to remain up to fifteen years of age or even longer. This may seem a large allowance, but it is no more than is necessary. We are apt to think of sleep as a negative state, the uses of which are simply to afford rest from the exertions of the day, so that we do not sufficiently appreciate that the loss of tissue caused by the day's work and emotions is made up in sleep and that this process of repair is a positive one, urgently needed at a time when mental and physical growth is most rapid and the nervous system is undergoing a special strain.

The important point in a girl's sleep is not the hour when she goes to bed, for any amount of time may be consumed after that, but the hour when she goes to sleep. Fortunately, there is rarely any difficulty about her sleeping as soon as she gives herself up to sleep. If a girl is *in bed and asleep* by half-past nine and gets up at half-past seven she has had the necessary ten hours and this arrangement, or its equivalent, ought to be the rule of life for the schoolgirl, except on Fridays and Saturdays when she has no school work next day. No girl can make a proper toilet in less than half an hour and many girls require more, breakfast takes, or ought to take, another half hour, and this leaves a third, which is not more than enough to collect books, put on outdoor wraps, and get to school. There are many girls, of course, especially in the pub-

lic schools, whose families breakfast at seven or even earlier, and who must get up correspondingly soon; but in such cases bedtime ought to be proportionately early. Unfortunately, human nature at this time of life always inclines a girl to believe that she can dress in fifteen minutes, eat her breakfast in ten, and still get to school in time, so that forty-five minutes, in her opinion, is enough for everything; but to her elders it is plain that in such a scheme as this something is sacrificed. Either her toilet is not neatly made, or she swallows her breakfast whole, or she runs all the way to school.

So far then the home may be held responsible for the health of the schoolgirl—it now remains to be seen how far the school itself is accountable. There is a great deal of talk, and has been for some time, as to overwork at school and consequent injury to health, but if we look at the matter dispassionately, I think we shall see that failure of health in school-girls is the result of defects in their home life, such as we have just discussed, or else to errors in school management other than excess of school work. Good, hard, intellectual effort cannot in itself injure the health. On the contrary, a certain amount of fatigue in school work is only normal and right, for mental exertion causing mental fatigue is just as good for the mind as bodily exertion leading to physical fatigue is good for the body. The presence of normal fatigue

in school work is a reason for satisfaction rather than alarm; it is only when fatigue exceeds the normal limits that our anxiety need be aroused.

Over-fatigue when it exists may be recognized by the presence of certain definite signs. A lazy or unconscientious girl may feign fatigue in order to escape work, or the self-consciousness that is so marked a feature of girlhood, together with the imaginative tendency that also belongs to it, may lead a perfectly honest, industrious girl to think herself over-tired and consequently unwell because it makes her an object of interest and sympathetic attention. Fortunately, the presence or absence of the signs of real over-fatigue is easily determined. A faraway dreamy look in the eyes with a tendency to fix them upon vacancy, as well as blue lines under them, and twitching of the eyelids or of the facial muscles are common indications. Others are a drooping of the corners of the mouth, lack of coördination of movement, a dull, toneless voice, and failure in habitual self-control. One symptom of special importance is the continuance of fatigue into the next day; if a schoolgirl gets up in the morning with the weariness of the previous day still hanging about her, accompanied, perhaps, by a sense of dull misery for which she can give no reason, she is certainly taxed beyond her powers. Not that all these signs are present in any one case, as a rule, but one or more of them will always be discernible if

fatigue is really excessive. One thing that should always be borne in mind in keeping a watch over the strength of a young girl is that she herself is usually the last person to find out that she is tired. Not only is she anxious to keep up her place in school, and unwilling to believe it is an effort, but the more tired she is the less is she likely to be conscious of it, for it is characteristic of extreme fatigue, especially at this age, that the subject of it does not realize her condition being, so to speak, anesthetized by her own exhaustion.

Whatever changes in the school curriculum for girls may result from our increasing knowledge of the psychology of the period, one thing above all is desirable, and that is some modification of the existing high pressure and nervous tension. When we consider the unstable condition of a girl's emotional nature at this age, it is plain that constantly recurring examinations, competition for class standing, and efforts towards distinction in the shape of high marks, prizes, and other educational badges of merit, must be an incessant strain upon her both in mind and body. This particular element in the present system of education bears more severely upon a girl than a boy, because she responds more rapidly than he to stimulation, whether from within or without, and also because she is more elated by success and more depressed by failure. Moreover, a girl's conscience is usually more

sensitive than a boy's, in fact it is often morbidly acute and will goad her into exertions beyond her strength, when a boy in the same circumstances possesses a certain doggedness of resistance that makes him stop short when he is satisfied he has done all that could reasonably be expected of him. Last, but not least, a girl suffers under the disadvantage of recurring periods of time when her nervous system is under a special tension.

Another point upon which the present school methods are dangerous to health is the presence of too much preparation work to be done at home, though the parents are answerable on this particular count as well as the school authorities. Two hours is all that ought ever to be spent in study outside of school hours as a regular thing though another hour may be allowed occasionally for special reasons, or, perhaps, in the final year. Some people may consider two hours a small allowance, but if they will take the trouble to analyze the situation they will find it is all that the conditions of life will permit. If a girl gets out of school at two o'clock, it will be nearly or quite three before she gets home and has had something to eat. It will, I think, be generally conceded that the next three hours ought to be passed in relaxation and exercise, and as much as possible in the open air. If the schoolgirl comes in at six and the next hour is occupied with the evening meal and the preparation

for it, she will have just two hours at her disposal for study before she goes upstairs at nine, as she must do if she is to be in bed and asleep in half an hour. It is evident that any more time spent in study must be at the expense of sleep, of recreation, or of outdoor exercise. If a girl cannot keep up with her work on two hours' preparation, there is something wrong. The work itself may possibly be too heavy, but more often the reason will be found in defective nutrition, want of sufficient sleep, or to a lack of physical or mental capacity in the girl herself, a fact which parents are naturally slow to admit.

Every schoolgirl needs to be specially guarded from overfatigue during the year of puberty, when menstruation is established. One of the greatest defects in the present school system is the absence of any definite provision for this most important point, and it is to be hoped that among the improvements, to which we look forward with our advancing knowledge, may be radical changes along this particular line. At present a girl can only be protected by special adjustment of the conditions in her individual case. In some instances it is well to take a girl out of school altogether for a few months or even a year just at this time, so that each period may be more carefully watched than is possible while she is in school, but this is not by any means always desirable. When such a course is necessary, a girl's lessons ought to be

carefully kept up by private tuition along the lines of the school, so that she may be able to go on with her class when she returns. Nothing can be worse for her than idleness, both physically and mentally. If she remains at school, she ought to stay at home for the first day or two of each period, or perhaps the whole time, until the function is fully established and the periods are regular. Parents can always control this matter if they choose, and they will find teachers ready and even anxious to coöperate with them. It is a point indeed when coöperation between the two is of great value. If the teacher understands the situation she can do a great deal to lighten a girl's work and protect her from over-exertion in her hours of recreation, but it is only through the mother that she can learn when such care is needed.

Any signs of failure in health in a schoolgirl ought to receive instant attention; and no time should be lost in taking measures for her relief. Whether it is necessary to stop her studies altogether or only to reduce them, is a question to be determined after due consideration in each individual case; but one thing certain in all cases, is that something definite must be done. It is a fatal mistake to think a girl can be kept up to her work by tonics and encouragement, so that she will get through somehow. I do not speak lightly of interference with a school career especially in its later years. It is extremely hard upon a girl's

ambitions to lose her standing, and, it may be, have her graduation postponed, and it is not true to say that it will make no difference to her in going on further in education or self-support. It may make no difference in the end, but it does at the moment, and apart from the annoyance of present delay there may be inconvenience from additional expense or loss of time in beginning to earn money. But these disadvantages, real as they are, should count for nothing in comparison with health. They should rather be looked upon as the price to be paid for health, which is the one thing needful. Moreover, the danger of injury to standing in school is often much exaggerated. A few months' rest will, in many cases, put a girl on her feet and she will find herself at the end of the year just where she expected to be, for she will be able to work well enough after her rest to accomplish all she had planned, whereas if she struggled on under pressure her work would certainly suffer even if she did not break down and have to abandon it altogether. Furthermore, if the first indications of fatigue and failure in health are not attended to, the condition will roll up like a snow-ball and may overwhelm her in the final year, just when the goal is in sight.

Before leaving the subject of health in the school-girl there are one or two points especially associated with the physical peculiarities characteristic of that

period in life which demand a word of notice. The disturbances accompanying the growth of bones and muscles during the early years of girlhood make the question of posture in studying one of great importance. This fact was recognized as long ago as the time of the philosopher Locke, for he wrote "the Pupil should know how to lay the Paper and place the Arm and Body to it." Lateral curvature of the spine is especially common in schoolgirls, because at this time of life when the vertebræ are still largely cartilagenous and yield easily to pressure in any direction many hours each day are spent in a sitting posture with the body inclined forward and slightly to one side in writing. This condition of things is peculiarly favorable to curvature, especially as the girl is growing so fast that it is hard for her to hold herself erect and she slouches from fatigue. To counteract this danger she should not only be kept under close observation, but her desk must be carefully adjusted at the beginning of the year and tested again at the half year. If, in spite of attention to these details a girl's posture in sitting or standing is habitually awkward, she should be examined by a physician with a view to ascertaining whether the ungainliness is due simply to a careless carriage or to a beginning curvature of the spine. In either case a few months of well-regulated gymnasium exercises, under the direction of a physician, will probably relieve the trouble.

Another defect against which precaution is especially important at this time of life is injury to eyesight. Inspection of the eyes of school children in different cities in this country, as well as in Great Britain and Europe, has shown that eye troubles of all kinds increase noticeably year by year from the primary schools onward, until by the time the High School is reached, not less than one-third of the pupils have defective vision of one kind or another.

The most common trouble at this age is *myopia* or nearsightedness. In this condition the eyeball is too long from before backward and the rays of light, which should come to a focus directly upon the retina, are focussed a little in front of it. Sometimes, though not often, the eye is myopic at birth, because the eyeball is congenitally misshapen, but in the majority of cases the shape is injured in early youth from overmuch use of the eyes. It is a well-known physiological fact that when a part of the body is in active use, the blood supply to it, for the time being, is increased, and when the eyes are used for many hours of the day the circulation in them is necessarily filled all the time to its fullest capacity. The result of this constant increase of the blood supply to the eyes, at a time when the tissues are still young and undeveloped, is to cause excessive pressure in the eyeball, under which the coats of the eye gradually give way, causing a permanent alteration in the shape of the eyeball. Great watchful-

ness on the part of parents and teachers is necessary to prevent this condition of things and the moment it is suspected the amount of near work done by the eyes should be lessened and the proper glasses supplied.

Myopia is by far the most common trouble with the eyes of schoolgirls, though not the only one. The opposite condition, known as *hyperopia*, in which the eyeball is too short from before backward and the rays of light come to a focus behind the retina, is a condition that appears almost always with advancing years, but it is not common in youth. *Astigmatism*, however, in which the transparent part of the eye, known as the cornea, is greater in one meridian than the other, is of very frequent occurrence. In addition to these defects in the eyeball itself, there is always the possibility of straining one of the six tiny muscles that move the eye in the socket, or of injuring the ciliary muscle in the interior of the eye by which it is accommodated to near vision, and with all these possibilities in existence, it is plain that no indications of eye strain, no matter how slight, should ever be overlooked.

Overstrained eyes are apt to have a dreamy distant look, and very often there is twitching of the eyelids. In some cases one or both of the eyes is slightly crossed when the girl is tired, though there may be no signs of such a thing at other times. Another sign of eye strain is redness of the eyelids and

a slight discharge, which forms a yellowish crust along their margins. Sometimes a girl is observed to rub her eyes frequently, and when questioned she will admit that she feels as if there were fine grains of sand underneath the eyelids. But not infrequently eye-strain makes itself felt by symptoms connected with parts of the body having no connection whatever with the eyes, and whenever a schoolgirl has constantly recurring headaches, indigestion, or some other disturbance of the general health for which no explanation can be found, it is wise to have her eyes examined by an oculist. In a good many cases the explanation of her symptoms will be found in them.

The social side of a schoolgirl's life is a good deal subordinated to the claims of her education, but it is of more importance than it is usually supposed to be, or rather to put it more accurately, our increasing interest in girlhood makes us feel all phases of it of more significance than was formerly supposed. It is too much the custom to leave the social side of a school-girl's life to chance and not a few parents who are scrupulously careful in everything concerning a daughter's education leave her to her own devices as regards her outside interests. But the mental and moral peculiarities of girlhood at this age show themselves more markedly in the social than the educational life and it is through the social side of a girl's existence that they receive their most important training. The

self-consciousness arising from the first realization of her *ego*, the desire for freedom of action, and the craving for new experience and a knowledge of life all find an opportunity for manifestation especially in social life and through its various phases they receive most valuable discipline and training.

To keep the balance true, so that a girl shall receive the full benefit to formation of character from social life and at the same time shall not suffer from its encroachment upon other claims, is not always easy. If she is allowed too much gaiety and amusement her education will be neglected, while on the other hand if her natural instinct for pleasure is unduly repressed she will become rebellious against the authorities who she feels are depriving her of what her youth entitles her to enjoy. Again, if she is allowed to choose her companions without any supervision or restriction she will almost inevitably make some undesirable acquaintance and, if, on the contrary, her associates are selected for her, she will never learn the knowledge of character enabling her to choose her company wisely in after life. Of the two extremes, too much liberty is probably better than too little, because the vital point at this period of life is the acquirement of self-reliance and self-control.

The greatest difficulty in a school girl's amusements at the present day is to keep them sufficiently simple. Every year sees her pleasures become more

like those of her elders, and with every step taken in this direction she loses something of the real enjoyment that is the right of youth. For girls of fourteen or fifteen, formal entertainments such as teas and lunches are a mistake. At this age a girl gets no real pleasure from them, though the self-consciousness of the period may lead her to feel a certain gratification in imitating her elders. Evening entertainments, however, with dancing or games, which provide an outlet for the high spirits and physical activity of youth, are usually the source of real enjoyment, and public amusements, such as the theater or concerts, not only give pleasure but are a real benefit by cultivating a girl's taste along the best lines and guiding her in coming to a decision as to her own special aptitude for accomplishment. And it ought to be generally recognized that this time in life, when a girl's nature is plastic and her susceptibilities quick and keen, is the period when she should be trained in those social observances, obligations, and courtesies which the French so appropriately call, *les petites morales*. Any little mistakes that a girl makes in social shibboleths at this age excite no comment, for they are set down to inexperience, whereas a few years later, when she goes into society as a woman, the same negligences and ignorances may expose her to unkind criticism. All evening entertainments, however, whatever their nature, ought to be restricted to

Friday and Saturday evenings, except during the holidays. Nothing, as I have already said, is so essential to a girl's health at this age as sleep and no amusements should be allowed that shorten her night's rest.

One most important feature in social life at this age is the relation between young girls and boys of the same age or a little older. The time of life when they can amuse themselves together on exactly the same footing disappears with childhood. With the advent of puberty the fundamental difference established by Nature between the sexes asserts itself and demands recognition, bringing with it a new social relation just as natural in its way as that of childhood, but calling for great care and circumspection. The outward and visible sign of this different relation between the sexes is that girls and boys begin to regard each other in an entirely new light. Very few love affairs of any real significance, as we saw in a previous chapter, develop at this age, for the element of passion does not exist before maturity, but the coming event sometimes casts its shadow before and as the emotional susceptibility of the age is very great, a sort of prologue to the old, old story is often enacted. At this stage of development it is most important that a girl should put confidence in her parents and that they should encourage her seeing the right kind of acquaintance of the other sex. If a girl feels that her parents are glad to further her inter-

course with boys whom they have reason to like and respect, she will be willing to give up an acquaintance which they disapprove. Moreover, it is through a girl's intercourse with the other sex that she receives one most valuable part of her social training, namely, the knowledge how to accept their attentions graciously and also to protect herself against them when it is necessary to do so. We teach little children that they must be responsive to everyone and accept any notice that is taken of them with courtesy, but there comes a time when it is just as necessary for a girl to learn that attentions on the part of the other sex must sometimes be refused or accepted in a qualified manner, and that she must acquire the art of doing so with dignity and firmness but without giving needless offense. Many a girl has been subjected to unkind criticism for allowing the attentions of a boy of her own age whose conduct or manners were not all they should be, when she was really not at all anxious for them and only allowed them because she was not sufficiently well trained to know how to rid herself of them without actual rudeness.

The choice of a girl's companions among her own sex is a matter of more importance than it is always thought to be. A girl of low principle or bad habits can do untold harm at this age, especially when she is a little the older. Unfortunately the girl who is calculated to do most harm is not always the girl who is

most displeasing to parents. If she has smooth manners and worldly wisdom enough to make her wish to stand well with her friend's family she may make it her business to deceive them. A girl's character is sometimes warped by a companion who seemed to her mother a quiet well-behaved girl.

The physical side of a girl's amusements is a considerable factor in her health at a time when bodily activity is at its greatest and high spirits require an abundant outlet. It is worth while to go to some trouble and expense to provide girls with amusements, either within doors or without, which gratify the superabundant energy and activity of the age and provide an outlet for nervous restlessness. Without some form of physical activity the young, rapidly-growing body is uncomfortable and ill at ease, while if the restlessness and pent-up vitality is allowed to express itself without training or supervision it will often lead to awkwardness of bearing and rough boisterous actions which detract greatly from a girl's physical attractiveness.

The various forms of outdoor exercise suitable for girls have been already discussed. Of all indoor active amusements nothing meets the necessities of the case so perfectly as dancing. I do not mean what is known as *round* dancing, though this is healthful too in its own time and place, but *figure*, or, as it is sometimes called, *æsthetic* dancing. It not only affords an

outlet for the superabundant energy and high animal spirits of youth and at the same time gives great enjoyment, but it trains certain faculties, especially those of coördination in a way that nothing else can do. Moreover, the costumes and accessories, demanded in the national and fancy dances, appeal strongly to the love of dress and adornment so strong at this age. *Fencing* possesses some of the same advantages as a form of indoor activity, but it does not afford the same outlet for restlessness and pent-up activity.

Of all sedentary home amusements for girls, the most important, of course, is *reading*. Very few girls fail to care for reading altogether, though the majority of them do not enjoy anything but fiction. Investigations recently made into the choice of reading among young girls show that although it is not vicious, on the contrary, there is every reason for satisfaction on this score, it is extremely trivial and inferior. There are several factors at work in this want of literary taste among girls, but in all probability the most important is the fact that their minds are stultified by the mass of so-called literature for children provided to-day. Up to a generation ago the number of books written expressly for children was limited, and a little girl who had a taste for reading was forced to gratify it by books written for her elders. This brought her into contact with really good literature from her earliest childhood and her

literary taste was insensibly trained along the best lines, so that by the time she reached girlhood she found no pleasure in what was inferior. But to-day children all over the world are suffering from a curse in the guise of a blessing in the multitude of books and magazines written expressly for them, and a little girl, supplied from the time she can read at all with any number of books of this class, is affected ultimately in one of two ways. If she has little or no intellectual capacity, her mind will become completely dwarfed, so that by the time she reaches girlhood she is unable to care for anything of a higher calibre than the Pansy books. If, on the other hand, she chances to be a child of really good mind, she will turn instinctively from what is vapid and commonplace, but her inherent taste for interest and force will find gratification only in what is highly spiced and exciting as, for instance, the novels of Marie Corelli. Literary merit of any other kind will have no meaning for her. For, in considering the reading of young girls, it must always be borne in mind that the excess of emotion characteristic of this age, with the desire for new experience, and the awakening feeling for the other sex, necessarily creates a craving for love stories; and provided the story is an innocent one, where the course of true love after the usual vicissitudes ends in marrying and living happily ever after, such stories are in no way harmful.

If a girl's taste in reading is to be what it should be, it is necessary to begin to form it a long time before girlhood. When the mind has been restricted and the taste injured by being fed on nothing but the popular children's literature, it will be a long time before she learns to enjoy what is really good in literature, if indeed she ever does. Yet we cannot, obviously, go back to the conditions of half a century ago, when a little girl who wanted to read had nothing but good standard works. All that we can do is to keep the supply of children's books as low and as select as possible, and offer every encouragement to reading more desirable ones. Some of the best schools for girls are making an effort to cultivate their taste in reading by giving lists of books, especially fiction, which they are advised to read in the summer holidays, but no one can do so much in this way as the parents, if they only realize the necessity for effort on their part. How little they do understand it is well illustrated by a story told by someone recently writing on the subject of girls' reading. A schoolgirl, in some paper sent up to her teacher, had spoken most enthusiastically of a certain lurid and sensational story by a popular authoress, and her teacher recognizing the evils of that style of literature, wrote upon the margin of her paper on returning it, "not suitable," to which the girl's father wrote in reply, "why on earth not?"

The only point in regard to which average parents seem to be concerned in their daughters' reading is the possibility of their acquiring what they consider an over-early knowledge of good and evil. But this is a matter in which it is necessary to discriminate. As long as we have to do with actual childhood, there is no reason for apprehending any danger of this kind. Incidents and situations associated with sorrow and sin are full of terrible significance to mature readers, because their own knowledge of life supplies them with a key by which to interpret them, but they have no meaning for a child whose mind contains no means of interpretation. A middle-aged woman whose reading in childhood had been perfectly unrestricted, once told me that she remembered some relatives remonstrating with her mother for allowing her to read "Vanity Fair" when she was only ten years old; and in after years she was moved to try and recall as vividly as she could what had been her understanding of the book at this time and especially of the relations between Becky Sharp and Lord Steyne. She remembered, she said, that she imagined Lord Steyne to be an old and valued family friend, to whom Rawdon as well as his wife was attached, and Rawdon's quarrel with him appeared to her the most natural thing in the world, since he had been left in prison when Becky had plenty of money to get him out and Lord Steyne, having given it to her, knew that

she had it. The real nature of their relations never entered her mind because no path had been opened by which it could enter. This little story seems to me to show the real facts in this matter, namely, that children cannot get a knowledge of evil from reading about what they are incapable of understanding.

But when a girl emerges from childhood, the question assumes a different aspect. Puberty brings with it a natural curiosity in regard to sexual things, as well as more or less knowledge in regard to them, therefore many things whose meaning was completely hidden up to this time, are now to some extent understood. Moreover, in those cases where parents pursue the policy of absolute reticence as regards sexual matters, a girl will often seek for light upon the subject in the books she reads. It would not be either just or kind to say that only a girl with a naturally vulgar mind will do this. The attitude of inquiry into the questions of sex is as natural as the attitude of inquiry into any other aspect of life; it is the parents who are at fault for failing to deal frankly with a girl on such subjects.

For these reasons, much more care is necessary in regard to a young girl's reading than a child's. The important thing in this matter, as in all matters involving the question of sex, is that the relation between a girl and her mother shall be of such a nature that she will seek the explanation of things half un-

derstood from the legitimate source and thus learn the right way of regarding them. A girl must find out as she grows older that marriage is not always sacred nor girlhood always innocent, and if when these things are suggested to her through the medium of books she is able to discuss them frankly with her mother or some older woman who will teach her the right point of view in such things, she will acquire good principles in regard to them for use in later life.

If it should be thought that the question of a girl's reading occupies rather a disproportionate space in this chapter, I must plead that of all a girl's amusements reading is the most important. Other forms of girlish enjoyment are more or less transitory in their effects. But reading has a permanent influence upon mind and character which entitles it to special consideration. Upon the nature of a girl's reading both in childhood and girlhood will depend not only the formation of her literary taste, but what is far more important, much of her attitude towards life and the views and opinions by which she guides her own actions. The school girl's reading, therefore, is a most important factor in her ultimate welfare.

CHAPTER X

DAILY LIFE ON LEAVING SCHOOL

Home life on leaving school — College life — Self-support
— Dress.

THE years between eighteen and twenty or twenty-one, when a girl has left school and begun life, as it were, on her own account, are much more diversified as regards occupation than was the case a generation ago when she married a year or two after the close of her school education. In those times her sojourn at home appeared to her in the light of an interlude between two acts in the drama of life to be filled up as pleasantly as might be. Now-a-days, when marriage before twenty-five is exceptional, a girl on leaving school plans her life on the supposition that ten or, it may be, fifteen years lie before her in which to pursue some kind of definite occupation before she marries and goes to a home of her own. Three roads of which she may make choice lie before her: She may live at home and fill up her time with household duties, social obligations, and philanthropic work; she may carry her education farther by going to college or

some technical institution; or, finally, she may assume the burden of her own support.

Whichever of the three ways a girl determines to follow, she must pass through a certain phase of her own development during the time between eighteen and twenty or twenty-one. Her physical growth is complete, her reproductive system is established, and the chief feature of these later years of girlhood is the evolution of her intellectual faculties which have, so far, been behind the emotional ones. This is the time in life when she begins to think, to feel, to judge, and to act independently. The desire for freedom of mind and body, which is the chief moral characteristic of this period, impels her to follow new lines of thought and action, but, as impetuosity is also a marked feature of it, she will probably make many mistakes and have to bear the brunt of numerous imprudences. At this stage of her career, however, the kindest thing that can be done for a girl is to let her alone until she has found her bearings, standing ready to give her a helping hand, if necessary, but not forcing it upon her without due reason. If her training in childhood and early girlhood has been what it ought to be, she will be secure from gross errors of conduct, and this being so, she will learn more from her own mistakes and follies than in any other way.

For the girl who decides to spend the first years after leaving home in her own domestic circle, her

life at home is sometimes a trying one. During a number of years her time has all been regulated to meet the requirements of a great educational system, and when there comes an abrupt and definite change it is often as hard for her to accommodate herself to the new order of things as for an animal brought up in captivity to adapt itself to sudden freedom. Things are made all the harder for her, because she herself does not understand the cause of her restlessness and discomfort and in many cases her family and friends are no more able to account for them than she. The possession of some definite talent or even some marked inclination is a great blessing to a girl under the altered conditions of her life at this time. She has then a little claim of her own, so to speak, staked out for her to cultivate, the existence of which provides her with a fixed point of interest around which her life will gradually arrange itself. It often serves also to obviate possible friction as regards the question of outside claims upon her time, for even the most old-fashioned parent recognizes the evil of keeping a talent in a napkin. The girl who is not so fortunate as to have an absorbing occupation ready for her when she is first thrown upon her own resources in the arrangement of her time, had better select some congenial pursuit and follow it up.

The class of girls who make a business of society is such a small one that it is not worth while to con-

sider it here, but every girl should have her share of gaiety and pleasure at this period of her life, for this is the time when Nature intended she should have it. The old saying that we are young but once is none the less true for being hackneyed, and like many another wise old saw, the grounds of its wisdom become clearer to us as we understand the psychology of human nature more fully. At this age the awkwardness, shyness, and morbid self-consciousness of early girlhood have to a large extent passed away, leaving animal spirits and the joy in living for its own sake to assert themselves with an intensity which does not belong to any other period of life. To deny a girl the enjoyment of such pleasures as come naturally in her way is doing her a great injustice and those in charge of her ought to be ready to take some little trouble and make some little effort in order to secure them for her.

Thirty years ago the girl who went to college was an exceptional being whom her friends and acquaintances regarded with mingled admiration and disapproval; now a college education for women is so common that the question whether a girl shall or shall not go to college comes up for discussion in every instance, if only to be answered in the negative. For those who hesitate in regard to sending a daughter to college for fear of injury to her health, there is every assurance, if they will look into the matter, that such

anxiety is unfounded. The majority of girls leave college at the expiration of their college course in excellent physical condition, and, although there is a small minority who are out of health on graduation or break down before reaching it, the failure in their health, like the failure in health of school girls, is due to other reasons than over-exertion at work required by the college.

The physical conditions of a girl's life while at college are everything that could be desired, in fact there is no time in a girl's life when her physical necessities receive such attention. The difficulties in the school girl's life arising from conflict between her necessities and those of other members of the family do not exist at college where everything in the student's life is arranged to suit her comfort and convenience in the first instance. Meal hours are adjusted to lecture hours, outdoor exercise and gymnasium work cannot be neglected without attracting the attention of the authorities, and recreations are so regulated by the rules of the college that except on Fridays and Saturdays the college girl has no temptation to sit up after ten o'clock. Certain complaints reach the public from time to time as to the quality, quantity, and service of the food, but all investigations into the matter have shown that there is no reasonable grounds for complaint. The only fault that can ever be justifiably found is the absence of variety and it is not clear how

far even this can be supported. How far girls injure their digestions by five o'clock teas is another matter, but one thing is certain, and that is they have far too strong a hold to be abandoned.

The only channel through which injury to health in college can occur is over-exertion caused by undertaking some pursuit outside of college work or by neglect of proper rest and relaxation. The amount of work required of a girl at college is calculated for the strength of an average girl of eighteen to twenty-two or three, on the assumption that she makes it her sole object, and if she spends her strength on something outside of it, it is plain that either she or the work must suffer. Any kind of exertion distinct from college requirements, therefore, constitutes an element of risk to health, though it does not, of course, always result in definite injury.

Of the various ways in which a college girl's strength can be over-taxed, the most serious is extra work occasioned by passing off conditions incurred on entrance. A girl of average intellectual ability ought to be able to enter college unhampered by conditions, provided her school training has been thorough, but unfortunately not by any means all schools are thorough, and many a girl who supposes herself ready for college fails to pass one or more of the examinations for entrance. The girl who fails in several different branches and fails badly is really for-

tunate, if she would but believe it, for then it is impossible for her to enter and she must either give up the idea altogether or make up her mind to spend considerable time and possibly considerable money in additional study. But if the failure is in only a few branches, the student is allowed to enter on condition that she passes the examinations on the subjects in which she failed within a specified time. Now if a girl begins her college work with a burden upon her shoulders like the old Man of the Sea, the time outside of her regular work, which should be reserved for rest and recreation, must be spent in working at her conditions and consequently by the time they are disposed of, she is so much over-tired that the over-fatigue remains with her all through college. The responsibility for this particular danger to a college girl's health must rest between her parents and the college authorities. The colleges claim that they recognize the evil and do their best to counteract it by restricting the number of conditions allowed and by insisting that they shall be passed off before a girl has gone far in her college career, but there is a great deal still remaining for them to do. One condition is all that should be allowed in the ordinary case, though there ought, of course, to be a discretionary power in exceptional ones. But parents have it in their power to control the whole situation by refusing to allow their daughter to go to college at all until she,

can enter without conditions altogether. If they would only do this whenever it is possible, they would accomplish more to protect the health of the college girl than can be done in any other way. I say *whenever possible*, because there are, of course, some cases in which the reasons for entering college without loss of time are so strong as to over-power the risk incurred and others where the risk is less than usual. If, for instance, a girl is over the usual age on entrance, the loss of time spent in further preparation is more serious and the danger to health from extra work less so than in the ordinary case, since a woman of, say twenty-five, can stand the consequent strain much better than a girl of eighteen, whose physical and mental powers are still immature. But it is the girl of eighteen whom we are considering at present, and her reasons for wishing to get into college immediately are usually that she wants to enter with a particular set of girls with whom she is intimate or that she does not like to have it known that she has failed, which it will be if she does not go at the expected time.

Necessity for contribution to self-support while in college is another element in over-fatigue and consequent failure of health. The health statistics of women's colleges where this sort of thing is most common show that girls do not break down from this cause as often as might be expected, probably because the work done for self-support is often of an unintel-

lectual nature. If a girl must do something towards her own expenses, she will be wise to choose some of the numerous miscellaneous jobs along the domestic lines rather than tutoring. Another thing that is an absolute necessity to the health of the self-supporting college girl is some amount of uninterrupted summer vacation. A strong vigorous girl does not require the whole three to four months holiday, but she ought to have at least three weeks of it, and, if possible, it should be just before college re-opens.

Another possible factor in over-fatigue is the effort to keep up a social life outside of the college. The student who does this steadily for any length of time will surely fall between the two stools in the end. Parents are often to blame (quite innocently) for this mistake. If they live near enough to the college for such a thing to be possible, they will urge and even insist that their daughter shall come home every Friday till Monday and then, when she does so, they are hurt or displeased if she does not enter into everything that is going on there. Still another error into which parents, and especially mothers are prone to fall is urging a girl to exertions beyond her strength because her mother believes she has more ability than is really the case. The girl herself does not often make this mistake. She may come to college with too good an opinion of herself, but it does not take her long to find her own level and she usually accepts

it with philosophy, seeing many another in like condition. But if her mother persists in believing that she is the cleverest girl in her class and has only to exert herself to prove it, she may be driven to make exertions beyond her strength or to curtail her sleep and exercise, not because she hopes to fulfill her mother's ambitions, but because she cannot bear to be thought to fail in doing her best.

It cannot be too often insisted that pressure just at this age, whether it be direct or indirect, is peculiarly dangerous, because although the emotional side of a girl's nature is less markedly in excess than was the case a few years before, it is still somewhat unstable, nor is the morbid conscientiousness of early girlhood always wholly outgrown, consequently she is quite likely to respond to stimulation too ardently for her own good. A boy will not yield to pressure from without when he thinks it unreasonable, but a girl gives way much more readily and often too much so for her own good. Again, a boy feels failure or the dread of it less intensely than a girl, partly because he is naturally less sensitive and partly because college education in his case is not an experiment for the success of which he feels himself responsible.

But the point of greatest importance in the preservation of the college girl's health is the necessity for favoring her strength at regular periodical intervals. The course of study at college was originally planned

with a view to the physical necessities of boys and it has been adopted ready made for girls without any regard to the fundamental differences between the sexes. A boy's health and strength is the same all through his college work except for such occasional interruptions as may arise from an accident at football or an attack of tonsillitis. But a girl must contend not only with such interruptions as these, but with regularly recurring intervals when her nervous system is under special tension for the time being and therefore her work makes a little additional demand upon her strength. A woman physician, with a large experience among college girls, tells me that she considers it would be fair to estimate the proportion of her time that the average girl is under a disadvantage from this reason as about one-fifth of the whole. During one-fifth of her time, then, the average college girl must do her work under slightly greater tension than usual and make slightly more demands upon her strength in doing it. And if she goes on steadily year after year working under additional pressure for a definite proportion of her time, without making any effort to save her strength at such times, her nervous system will gradually feel the effects of her efforts and manifest it by severe periodical suffering or else by symptoms of general nervous exhaustion. The connection between this exhaustion, in her final year, perhaps, and the neglect of periodical pre-

caution in the years preceding, however, is not generally suspected; on the contrary, her extreme fatigue on graduation is at once set down to over-work in the college courses, thereby strengthening the hands of those who wish to prove that women are not physically equal to the strain of a college education.

The presence of this fundamental difference between the sexes and its influence upon a girl's nervous system is the main reason why all work over and above the legitimate claims of college courses is more dangerous — other things equal — for a girl than for a boy, whether the additional work is in the form of conditions, of self-support, of outside distractions, or anything else whatever. No doubt many college girls do take reasonable precautions for saving their strength when it is necessary; the health statistics at the different institutions would not otherwise be so good as they are. But there is a growing inclination to regard periodical precautionary measures as a work of supererogation, and if this indifference should increase to any extent, the health of college girls as a whole will certainly depreciate. It is with the intention of calling attention to this danger that so much emphasis is laid upon the subject here.

Before concluding the subject of college education for girls it is worth while to say a word as to the girl whose health is constitutionally delicate, but who wishes, nevertheless, to have a college training. Some

good authorities hold that such a girl ought not to be allowed to make the attempt at all, but this seems an extreme view. If a delicate girl is willing to accept the fact of her disabilities and shape her course accordingly, there is no reason why she should not go through college. It is not worth while, for her to think of such a thing unless her means are sufficient to carry her through college without any exertions on her part and they should also be sufficient to keep her there longer than the usual time, if necessary. For the crux of the situation is this—the delicate girl must make up her mind that she must arrange to do rather less than the customary amount of work each year. Therefore, if she leaves college with the class to which she belongs, she will have to do so without taking her degree; or if she wants to complete the whole course and take her degree, she must stay on by herself after her companions have gone, like the crippled child left behind by the Pied Piper of Hamelin, until the whole amount of work is finished. A yet more excellent way is to carry her studies so far before she enters that she will have less than the regular amount of work to do for her degree and can complete what is necessary in four years and graduate with her class. But for a naturally delicate girl to come to college without entering some caveat as to the amount of work she undertakes each year is almost certain to end in disaster.

For the young girl who must support herself, either wholly or in part, immediately on leaving school, health is the most valuable part of her stock in trade. Such being the case it is not only her duty but her interest to preserve it. The general laws of health as regards food, sleep, out-door exercise and so forth, cannot be disregarded by the self-supporting girl with impunity. It is worth her while, in particular, to make a great effort to provide herself with proper food, and as this is a point where girls are apt to be singularly neglectful it is one reason why they fail in health so much sooner than boys. If the working girl lives at home she sometimes has to contend with some of the difficulties that beset the school girl, but she can better understand the importance of contending with them. Too often, however, the working girl who supports herself lives in a boarding house, where she pays a great deal for food she does not want and goes without much that she ought to have. Sometimes she thinks to solve this difficulty by getting her own meals, but this is a great mistake, for it is a tax upon her time and strength, and sooner or later she will almost surely yield to the temptation to go without food just when she needs it most. With many young girls fatigue causes a distaste for food instead of an appetite for it, and it is almost too much to expect that a girl of eighteen or twenty will have sufficient understanding of the situation and enough force of will

to prepare food for herself when she is so tired that she feels almost a disgust for it.

Sleep is fortunately not often a difficulty at the age which we are now discussing, but the girl who has only one little room in which to spend her evenings and also to sleep must be very careful to see that it is ventilated before she goes to bed. Open air exercise ought to be a binding duty to the self-supporting girl, just as much as her daily toilet, and unless she lives very far indeed from her place of work she ought to walk at least one way. Her natural impulse is to walk in the morning when she feels fresh and take a car in the afternoon when she is tired with the day's work, but it is better for her health to do exactly the opposite, for she needs the active exercise in the open air and the change of scene when she has been all day in a close, over-heated room.

Amusement of some kind is a vital necessity in the life of the self-supporting girl especially when she begins as early as eighteen or twenty or even younger. No girl as young as this ought to be thrown into the world to live with strangers, but as things are at present it is often unavoidable and the best thing that can be done for her is to guard her as well as possible. It is a great thing for such a girl if she is fond of reading, though she will hardly ever want anything more of a book than that it should be sufficiently entertaining to relieve her weariness

Anyone who is interested in a young girl at this time in her life and under these conditions can do nothing kinder for her than teach her to like good fiction and otherwise train her taste in reading. I do not mean making an attempt to elevate her intellectually by giving her Pater and Emerson, but introducing her to good novels, taking the most exciting first and so leading up to others with more robust literary merit. Nothing can be worse for her than the continual reading of the inferior kind of romance, which has no redeeming quality but superficial interest and excitement, for in the long run it will enervate her mind as surely as sitting in an over-heated room will exhaust her bodily vitality. The effect of an older and more cultivated mind upon a young girl in this respect is often very great. Indeed this is only one of many ways in which an older woman can do good to a young girl beginning life on her own account, and such a girl often stands greatly in need of help, though she herself is probably the last person to be aware of it. The instinct for friendship with members of her own sex somewhat older than herself is characteristic of the age, as we have seen before, and the influence of a woman of the right kind in a young girl's duties and pleasures is one of the best things life can bestow upon her.

A girl who works all day in monotonous surroundings is always the better for occasional outside amuse-

ment, for it takes her out of herself in a way nothing else can do. If she likes tennis, or golf, or gymnasium exercise, or dancing, it is worth her while to take some trouble to enjoy them or to spend a little money upon them. An occasional evening at the theater does some girls more good than anything else. The only objection to the latter form of amusement or to any other public entertainment is that a girl usually goes to it with an escort of the other sex, and while there is no harm in her doing so *per se*, a great deal of harm sometimes grows out of it. Much care ought to be exercised in the choice of an escort and also in a girl's own conduct while with him. This is the age when the possibility of a real love affair begins and many a girl's head is turned by the suggestion of such a thing.

A girl will do well to remember that other men are better judges of her young men acquaintance than she can be, and if her father and brothers or, if she lives away from home, her older men friends or relatives, tell her a youth is not a suitable companion for her, at any rate at public places, she had better think twice before she refuses to listen. She is courting disaster if she persists in keeping up an acquaintance with a young man of doubtful character. The excuse sometimes made by girls for maintaining an acquaintance or even intimacy with some young man against whom they have been warned, and whom they them-

selves admit is not steady, that they hope to influence him for his own good, is wholly fallacious. Such influence is hardly ever successful, and when it is, it must come from an older or else a married woman, where no question of a love affair can arise. When a young man advances this argument to persuade a young girl to keep up an intimacy with him against her judgment, she may be pretty sure he is using it as a blind.

Granting that the escort is all that he ought to be, a girl still needs to be very careful as to the choice of entertainments to which she accompanies him, as well as to her own arrangements in doing so. If she respects herself, she will not go to see any play with a young man unless she knows that it is free from indelicate situations and vulgar language. The present fashion of plays dealing in situations of a more or less immoral character is a most objectionable one, and a girl who respects herself ought never to go with a young man to see a play which she cannot discuss with him afterward. Dancing with men at public entertainments is another point where a girl needs to be especially careful, and she should never dance with anyone of whom she has reason to disapprove, even if her disapproval has no farther basis than lack of refinement.

Finally, one thing that the self-respecting girl living alone must never allow herself to do, is to invite an

escort to come in when he brings her home after some evening entertainment. Even if she has the use of a sitting room, it is too late at night and exposes her to comment from other people in the house, while if she has not a sitting room of her own, she should never even think of such a thing. This matter of the reception of visitors of the other sex is one of the reasons why a young girl of eighteen or twenty who is working for herself, ought not to live away from home, or at any rate from relatives, if it can be helped. It is only right that she should like to have companions of the other sex; it is the natural instinct of her age, but away from her own family it is almost impossible to make suitable arrangements. No matter how disguised a bedroom may be, nor how long her acquaintance with a young man may have existed, she must consider it impossible to take him up to it, and she may be quite sure of one thing, which is that if a young man is what he ought to be, he will respect her for being careful, even if she carries it to a point that other girls may call strait-laced.

The question of vacation is one of great moment to the girl who works hard all the rest of the year, indeed it is often the event of it. The girl who teaches, and has a long holiday of three to four months, may find it possible to do a little work in the way of self-improvement during the summer holidays but no one whose holidays are less than a month ought ever to

think of such a thing. A vacation taken alone is rarely good for any girl because the mind is not sufficiently taken out of itself. When a girl is so tired that she does not want the companionship of even one congenial friend she needs to spend her vacation in a sanitorium. But the choice of a companion is a serious thing and one in which it behooves a girl to exercise great discretion and, if necessary, self-assertion in refusing to accept an undesirable one.

The next important thing in a vacation is not to take it too seriously. This is the time of life when girls take themselves seriously in everything, and not a few of them are so possessed with the idea that they must make the most of a vacation, that they take it so hard as to neutralize the benefit of it. The idea that physical labor is a rest from mental labor and *vice versa* is true up to a certain point, but each kind of labor induces fatigue in its own way, and when a person is tired out with mental work the capacity for physical effort is lessened to a certain degree as well.

For the self-supporting as well as the college girl, and in fact for every girl who follows some regular occupation, whether at home or abroad, there is reason for precaution at regular intervals and the girl who disregards the necessity will suffer from it in the long run. No one, of course, would be foolish enough to say that a working girl ought to neglect her work to

take care of herself, and there is no reason whatever that a healthy girl should do so. All that she needs to remember, as I have said in more detail elsewhere, is that in some way or other she must avoid extra claims upon her strength so as to "slow up" until the period is over, when she can put on full steam again until next time.

Any consideration of the daily life of a young girl would be incomplete without some words upon the subject of dress. The costume of a girl undergoes a radical change when she passes from childhood to girlhood and one that is not in all respects to her advantage. Up to the age of fourteen or fifteen she wears loosely fitting garments hanging from the shoulders; then she assumes the regulation woman's costume which, even in this day of blouses and shirt-waists, is more or less tight-fitting and may easily become too much so, especially at the age we are now considering. It is the fashion at present to inveigh against the unhealthy nature of women's clothing, which, according to would-be reformers, has every fault of omission and commission that can exist, but the results, as we see them before us in the women who wear the much abused garments, do not altogether bear out the accusations.

The present custom which permits a girl to keep the woven undershirt next the skin which she wore as a child, is far more healthful than that of changing it

for a chemise, which used to be considered obligatory upon young girls. The chemise, being made of cotton or linen, soon became damp and sodden from the moisture of the skin which it could not absorb, and as both linen and cotton are bad conductors of heat, the warmth of the body easily escaped, leading to chilliness and making it easy to catch cold.

Whether a girl wears drawers of cotton or woolen is a point to be determined by the climate, the health, and the individual preference. The long woven drawers reaching to the ankle and tucked inside the stocking that little girls are in the habit of wearing become too hot in the house as soon as skirts become longer and extend to the shoe tops or farther. Yet they cannot be taken off in the house and put on again to go out without some trouble and it seems as if the best solution of the difficulty is to wear short cotton drawers and put silk or woolen tights over them when a girl goes out in cold weather.

The most important question in the clothing of young girls is the much vexed one of *corsets*. Of all the articles of women's attire that have at different times been abused and reviled, nothing has suffered so much at the hands of dress reformers as corsets. It is even reported that Hippocrates, who died in 361 B. C., vigorously reproached the ladies of Cos for too tightly constructing their ribs and thus interfering with their breathing power. But before condemning

the corset *in toto*, it may do no harm to inquire exactly what is the harm done by it.

The ribs, as well as other bones in the body, are still more or less cartilaginous in girlhood and the shape of them, especially the five lowest, commonly called the false ribs, can be easily changed by pressure. The shape of the upper ribs also can be changed by constriction, but only when it is extreme. If a corset is laced too tightly, the position of the false ribs will be altered, at first only for the moment, but ultimately in permanent form, and the organs within the chest cavity also may be injured or displaced. It does not follow, however, that because a corset is worn the pressure caused by it is excessive and it is curious that people who preach against tight lacing should never acknowledge any medium between extremely tight corsets and no corsets at all. They assume as a matter of course that if a corset is worn it must be laced too tightly.

If we look at the matter dispassionately we shall find the real state of the case to be this: A corset which is laced tightly enough to compress the ribs will change their shape, beside injuring the internal organs, in a woman of any age, and with a girl of fourteen or fifteen, whose bones are not hardened, the injury is caused easily with a comparatively slight amount of constriction, just as a faulty posture habitually assumed by a young girl will result in curvature of the

spine, though the same posture in an older woman will very likely do no harm at all. But the corset's power for evil lies in the way it is manipulated, not in itself; there is no reason why a properly fitting corset, which is never drawn tighter than the natural size of the waist, should do any harm whatever.

The practical upshot of these facts is that it is not desirable for a girl to wear corsets before she is eighteen, for earlier than this her bones are incompletely hardened and therefore easily distorted. When a girl of that age is thin and slender she does not need a corset, and can very well wait; if she is stout and clumsy, the corset will present a temptation to tight lacing that the discretion of a young girl, annoyed perhaps by the ungracefulness of her figure, may not be strong enough to resist, and it is wiser not to expose her to it. In fact the girl who, in the common phrase, "needs corsets early" is just the girl who ought to wait. It is hard upon her, no doubt, but her health is more important than her figure. The practice adopted by some fashionable mothers of deliberately putting corsets upon a very young girl in order, as they say, to form her figure, cannot be too strongly condemned. The only way in which the figure can be what they call "formed" is by changing the shape of the ribs, and this can only be effected by undue compression. The harm done in this way is often considerable and so far as this cus-

tom is concerned the people who declaim against corsets are justified in their indictment.

It is sometimes asserted that the only thing to be said about a corset that is not too tight is that it is useless, but this is a senseless remark. Even when the corset is perfectly loose and exerts no pressure whatever, it gives a shape, without which a woman's figure, to our eyes, looks slovenly and ungraceful. Of course, the dress reformers maintain that our taste to-day is perverted, and that we ought to admire the human figure as we see it in the ancient statues, but these good people never seem aware that the human figure to-day is precisely the same as it was in the times these statues were produced. The difference between them is entirely a question of clothes, which it is now customary to wear, and to which our eye is so accustomed that we think of the figure only as it appears in them. The only fair comparison between the Venus of Milo and the twentieth century woman would be one in which both were dressed or undressed, and if this could be done it would be seen that there is no difference (unless in some exceptional case) between them. The whole question of corsets and tight lacing needs to be revised in a saner and more reasonable light and those who realize the necessity for this will find satisfaction in the remark of the great English surgeon, Sir Frederick Treves, that "in dealing with this matter there would appear to be a tendency to reckless ex-

aggeration and sweeping assertion, as well as a disposition to treat the subject with an explosive and hysterical vigor."

The manner of dressing the feet is of great importance to comfort and health. Here again we find a tendency to improved customs, for within recent years fashion has taken a sudden inclination to side with comfort and health. The fashionable shoe of a generation ago is still admired and affected by a few girls, but the majority of them like to boast that they wear shoes as large and heavy as their brothers. So long as they are not so heavy as to be rigid this is a good thing. A low heel is much better than no heel at all, but an inch to an inch and a quarter is all it should ever measure on a walking shoe. The high heel that used to be badge of fashion is still worn to some extent and strange to say it is more affected by the working girl than by her wealthier and fashionable sister. It is always a great evil, for it induces a false position of the whole body by lifting up the heel of the foot and throwing the body forward, as if the individual were walking on tiptoe. When these high heels are used on slippers, in which no walking of any extent is done, they do no harm, but for any other purpose they are as injurious as anything can possibly be, especially if they run too far under the middle of the foot, as they often do, thus altering the whole balance of the body.

Garters of any kind, whether above or below the knee, are an objectionable feature in a girl's clothing. They are almost sure to arrest the circulation and cause cold feet, to say nothing of possible varicose veins. There are various ways of keeping up stockings by supports attached to the clothes, the latest device being straps fastened to the corset or corset waist. These would seem most desirable, but some people complain that they cause pain in the muscles of the calf.

CHAPTER XI

MINOR AILMENTS

Headache — Constipation — Diarrhea — Indigestion — Colds
— Over-fatigue — Dangers in popular remedies.

OF all the minor ailments to which girls are subject, *headache* is the most common. It usually makes its appearance at puberty and sometimes the tendency to it passes away in a few years, with other disturbances characteristic of the period; in other cases the headaches recur more or less frequently through life. The occasional recurrence of headache of no great severity, is not a matter for uneasiness, but whenever a girl has frequent headaches, some attention should be paid to them, for they usually indicate something amiss. If the girl seems to be well, except while actually suffering with the headache, it is best for her to consult an oculist at once, no matter whether she complains of her eyes or not. Every year adds to the number of young people who are discovered to be suffering from headache due to defective eyesight and are relieved by proper glasses, and not a few of these girls had no symptoms whatever directly associated with the eyes.

It must never be forgotten that even if a girl's eyes have already been examined and, perhaps, fitted with glasses, they may still be the cause of headaches which have begun since the oculist was consulted, for defects of the eyes are especially likely to develop or to increase just at this age.

But if the girl with headaches is pale, languid, and generally out of sorts, the family doctor had better be consulted immediately and a specialist later, if it seems advisable. Poverty of the blood, which is one of the physical disturbances occasionally present at this age, is a cause of headache, and so is indigestion, but in girls of this age headache proceeds from constipation more often than from anything else, except the eyes. All of these troubles a physician will find means to relieve. It is a great mistake to let a girl go on suffering from headaches, without taking measures for her relief.

Many girls suffer more or less from headache at the monthly periods and with some of them the pain in the head is more marked than the customary pelvic pain. The idea, held by some persons, that pain in menstruation is only in the neighborhood of the organs concerned is entirely a mistake. It has been already explained that suffering of any kind at the period is a manifestation of nervous disturbance and the disturbance may express itself in headache, as well as in the organs immediately concerned. Neither headache

nor pelvic pain necessarily indicates disease or displacement, but they both emphasize the necessity for care of the nervous system by means of rest and relaxation.

Everyone with a headache is anxious for immediate relief, and there are innumerable headache remedies, but it is a great risk to take any one of them unless its use has been sanctioned by a physician. The reasons for this caution are given at the close of this chapter. Bromide of potash is almost the only drug that it is safe to take without medical advice; this may be tried in powders of twenty grains each, dissolved in water, and in some kinds of headache it will give great relief. In all headaches one of two conditions is present: the blood flow to the brain is increased or else it is lessened. If it is increased, the blood vessels in the brain are congested, the face is flushed, and there is a throbbing sensation in the head. With a headache of this kind an ice cap on the top of the head or at the base of the skull often gives relief; so does a mustard plaster over the back of the neck, or some chloroform and aconite liniment on a piece of flannel held over the same place. If the feet are cold, as they often are, they should have a hot water bag or some substitute for it applied to them. This is the form of headache in which bromide of potash, which reduces the activity of the circulation in the brain, does most good.

When, on the other hand, the circulation in the brain is lessened, the face is pale with an anxious expression, and there is a tendency to chilliness, with more or less exhaustion. In headaches of this kind the subject needs as much warmth and rest as possible and she should be warmly covered up and kept quiet. It is always well to find out how long it is since she has had something to eat, for it may be that faintness from lack of food is a factor in the pain. In such cases there is generally no appetite and there may be an aversion to food, but some light nourishment, such as soup, beef-tea, a glass of hot milk, will often work wonders. A cup of tea or coffee also frequently gives relief, especially if the patient is not in the habit of taking it. In this kind of headache some people get a great deal of relief from having the head brushed slowly and gently with a stiff brush; others cannot bear anything of the kind. In all cases rest and, if possible, sleep are the important things. This sort of headache, if it happens often, shows that the subject of it is not in vigorous health and that her general condition requires attention.

One particular form of headache requires a special word, and that is the kind commonly known as *sick headache* and technically as *migraine*. This sort of headache is quite a different thing from the headache accompanied with nausea and vomiting, which goes with an attack of acute indigestion. In the latter case

the headache and nausea are simply accompaniments of the indigestion and disappear with its relief; but in sick headache they are manifestation of some underlying condition that we do not yet understand. Some authorities believe that sick headaches are a special nervous manifestation; others think they are a form of constitutional gout, and there is no doubt that gout is associated with them in some cases.

Sick headaches are rarely present in children; they usually begin at puberty when other phases of nervous disturbance are present. With girls they are apt to occur with the regular periods, and in some cases they do not appear at any other time. In these instances the patient and her relatives are always prone to think there must be some local disease which accounts for them and that the headaches will disappear if this is cured. But the fact that men have these headaches as well as women, shows that they can have no direct connection with the organs concerned in menstruation; furthermore, in some cases when disease or displacement of these organs has been discovered and remedied, the headaches have not been in the least benefited. There can be no doubt that they appear at the periods only because the nervous system is more susceptible at such times than at others.

Such headaches usually begin early in the morning, and people who are subject to them often find that they are preceded by peculiarly heavy, deep sleep. As

soon as the subject of the headache gets up, she feels giddy and often she sees spots dancing before her eyes or experiences a sensation of dazzling light. The pain is almost always confined to one side of the head, and the face on the affected side is either deeply flushed or deadly pale. There may be nausea from the first, or it may not come on for an hour or two. After it does begin it soon turns to violent vomiting, which does not, however, bring relief as in ordinary indigestion. The attacks of vomiting and retching succeed each other at short intervals for about five or six hours, during which the pain is very severe and sometimes really agonizing. At the end of this time the vomiting ceases, the pain gradually lessens and, in the case of a young girl in good health, recovery is astonishingly rapid. By the evening she will feel almost well again and be ravenously hungry, while the next morning she will get up as well as ever. Later in life, or when there is some delicacy of constitution, recovery may be a matter of several days. Everything about these headaches goes to show that they are *nerve storms* in which for some reason gastric disorder is present, but we do not yet know whether the cause of them lies in the nervous system itself or in some constitutional condition which affects it. Such a headache as has been just described is typical; not all of them are so severe and the patient may be able under strong necessity to get about. A really

well-marked attack, however, is absolutely prostrating. One peculiar feature of many sick headaches is overpowering drowsiness, probably arising from some disturbance of the circulation of the brain. In some cases this is so excessive that it will overcome the severity of the pain and the patient will sleep heavily between the attacks of vomiting.

It is useless to give any internal remedies for a well-marked sick headache, for the stomach cannot retain them. In the less severe cases a cup of hot coffee, taken in the very beginning of the attack, before the nausea has become established, sometimes gives relief, as well as a mustard plaster over the back of the neck, and another over the stomach, but in a case of even moderate severity there is nothing to be done but to keep the patient quiet in a darkened room and make her as comfortable as possible. In unusually severe cases, or under special circumstances, it may be necessary to send for the doctor and let him give a hypodermic injection of morphin, but neither the patient nor her family should ever be allowed to keep the hypodermic syringe and use it themselves. Many cases of the opium habit have been formed in exactly this way, and no one is justified in thinking themselves equal to the temptation.

But, although nothing can be done to relieve these headaches, a great deal is possible in the way of reducing their frequency and severity, and girls who are

subject to them can do more for themselves than anyone can do for them. Attention to all the laws of health, avoidance of over-fatigue and excitement, early hours, plenty of sleep, and especially attention to the bowels will do a great deal to hold them in check. In some cases the relief of habitual constipation has been followed by almost entire freedom from this kind of headache. When the headaches are associated with a gouty or rheumatic tendency, it manifests itself by shooting pains in the joints with soreness just before the attack of headache, and if this fact is mentioned to a doctor, he can often improve the headaches by treatment appropriate to the underlying trouble. When these headaches continue after the period of puberty is passed, they can rarely be entirely cured, yet by a properly regulated life and great attention to the laws of health they are often so controlled that they occur only at intervals of years.

One of the most frequent causes of headaches, as well as of many other disturbances of health is *constipation*. In fact, though headache from various sources may be the most frequent of all minor ailments among women, if we consider the two sexes together we shall find that constipation will prove the commonest of all. To realize all the varieties of harm that may arise from constipation, it is only necessary to understand the conditions associated with it, but this is exactly what many people do not. A cer-

tain amount of waste product is produced each day in the action of the various bodily processes and this waste material must be removed from the body each day by the process known as excretion, performed by the intestines, the kidneys, and the skin. The work done by the skin and the kidneys is not directly under our control, though we can influence it indirectly by means of exercise, daily baths followed by friction, and drinking a liberal amount of water. But excretion from the intestines, to a certain extent at any rate, is a voluntary action, which can be performed or not as we please. As the food mass passes down the digestive tract, such parts of it as are capable of nourishing the body are digested and absorbed, while the remainder, which consists of various kinds of material unavailable for nourishment, is excreted from the end of the large intestine. This refuse material, technically known as *feces*, is composed of the waste products formed in the different bodily processes, the indigestible parts of the food, such as husks, seeds, stones, and any odds and ends of food that have escaped digestion. It passes on downward, assisted by the movements of the delicate muscles in the coats of the intestines, and prevented from moving back by valves formed by folds of the lining mucous membrane until it reaches the last division of the large intestine called the *rectum*.

When a sufficient amount has collected there, it

stimulates the mucous lining and excites a desire for evacuation. If this impulse is resisted, the mass of feces either returns to the upper bowel or else accumulates in the rectum, and after a little while blunts the sensibility of the lining, so that the desire to empty the bowels is no longer felt, no matter how full the rectum may be. Unless this state of things is speedily relieved, the waste products are re-absorbed into the blood and act as poisons to all parts of the body to which they are carried. Indigestion, loss of appetite, headache, and all manner of physical evils result from the slow poisoning due to re-absorption of waste products that nature intended should be expelled. The complexion in many cases is often markedly affected, and many of the skin troubles that distress young girls so terribly are due entirely to a loaded condition of the bowels.

This poisoning process affects not only the body but the mind, mental depression and irritability of temper are frequent consequences and the relief of the over-loaded bowel is followed by astonishing results in directions which no one had thought of connecting with deficient excretion. A certain story, which, if old is still good, relates that a famous Scotch minister was once sent for late at night to see one of his parishioners, a wealthy and prosperous lady, who was in terrible anxiety as to the condition of her soul, which she believed was doomed to damnation

beyond a peradventure. The old minister came, but after hearing the lady's outpourings of distress and anxiety, he turned to her maid who stood by and asked: "How long is it since her leddyship's bowels were opened." The event proved that his suspicion was a shrewd one, for after the administration of a purgative all the religious doubts and difficulties disappeared like smoke.

To empty the bowels at regular intervals is of vital importance to health, and is, therefore, a duty incumbent upon everyone. The point is of especial importance to girls, because constipation is a fruitful source of dysmenorrhea. Once in every twenty-four hours the rectum should be emptied, but unfortunately girls and young women are extremely careless in this respect, for many of them pay no attention to the condition of the bowels until they are forced to do so by their own discomfort, thinking, apparently, that discomfort is the only reason for doing so. The rule ought to be made early in life that a daily action is a moral duty and the various measures by which the habit can be formed and maintained ought to be carefully considered. This habit of daily action ought to be acquired in childhood, but unfortunately, not all parents train their children in this respect as they should do, and it often happens that a girl finds herself under the necessity of establishing the habit for herself. She may take comfort, however, in the re-

flection that a persevering and determined effort in the right direction will always be successful in the end.

In order to establish the proper habit, an hour for daily evacuation should be fixed and when once it is settled it must not be changed for any reason whatever. The time of day that is chosen is not a matter of importance, the essential point is that it shall not be varied when once it is adopted. The common habit of emptying the bowels every morning directly after breakfast is simply a matter of convenience; there is no special virtue in that time of day, and if it is not a convenient season, some other hour should be appointed. Many persons find the hour just before going to bed a good one. When the hour is settled an attempt at evacuation must always be made at the time fixed, whether it is successful or not, and if it fails the desire for evacuation later in the day must, if possible, be resisted. The regular habit will never be acquired if the bowels act at nine o'clock in the morning one day and three o'clock in the afternoon the next.

Very few people realize that the posture usually assumed when emptying the bowels is a faulty one, for in it the action of the abdominal muscles is wrongly directed and consequently their full force is not obtained at the place where it is wanted. The squatting posture instinctively assumed by savages and by young children is the natural one, where the thighs are drawn

up against the abdomen. Unfortunately the plan upon which the present water-closet seats are made is not suited to this position, but the defect can to a large extent be overcome by using a stool of such a height as to bring the feet up to the proper distance from the seat.

Next to habit, food is the most efficacious means of keeping the bowels in order. A mixed diet containing all kinds of food is best for this purpose, as it is for others. The main point in it, however, is that it shall contain a certain amount of indigestible food, because the more perfectly a food is digested and absorbed, the less residue is left to pass into the rectum and excite the desire for evacuation. Milk, for instance, which is an almost perfect food because it can be completely digested and absorbed, leaves no residue whatever to pass into the rectum. The foods which are best for the regulation of the bowels are: bread of all kinds, especially the coarser varieties, such as corn bread, rye bread, Graham and brown bread; the various cereals; fruits, especially those that have seeds, whether raw or cooked; butter, molasses, honey; and last, but not least, vegetables which contain large quantities of an indigestible substance called *cellulose*. Potatoes are especially valuable in the relief of constipation, because they consist largely of cellulose and of water. Water in itself is an excellent thing in the regulation of the bowels. A glass on rising in the

morning often helps greatly in establishing a good habit and a teaspoonful of salt in it often makes it more efficacious. Some persons prefer it hot and others like it better cold.

No one can ever hope to keep the bowels in good order without regular bodily exercise. Girls who lead sedentary lives at school or college or in some occupation for self-support, almost always suffer from constipation, for the abdominal muscles become weakened from want of exercise and this interferes with the passage of food downward. Active stimulating exercise is imperative, and if a girl cannot get a good long walk in the open air every day, she ought to try some kind of gymnastic exercises in a room with the windows open, so as to come as near the fresh air as possible. To strengthen the abdominal muscles it is a good plan to lie down flat on the floor (not on a bed) with all the clothing perfectly loose, and then raise the body into a sitting posture by means of the abdominal muscles without the help of the hands. This process, if it is repeated a good many times and kept up for some weeks or even months, will often accomplish wonders.

Under normal conditions no medicine should ever be taken to induce the bowels to act. In cases of temporary illness, when exercise cannot be taken and the gastro-intestinal tract is more or less out of order, it may be advisable to take a laxative, but not in,

ordinary health. Enemata are not so objectionable as medicine, nevertheless they are not desirable, except in cases of special urgency, because whenever artificial means for unloading the bowels are used, there comes a tendency to depend upon them, instead of forming a habit. A great deal is being written and said at the present moment in regard to overcoming constipation by means of suggestion and the influence of the mind. The idea, however, is an old one, and physicians have always tried to train their patients along these lines.

The opposite trouble to constipation, *diarrhea*, or looseness of the bowels, is of less frequent occurrence. In ordinary cases, it arises from over-irritability of the muscular or the mucous coat of the intestine, and this irritability may be brought on in several different ways. The most common cause of irritability of the mucous membrane is cold, which chills the surface of the body and drives the blood back to the internal organs, setting up a congestion of the circulation in the intestinal mucous membrane, resulting in a slight inflammation with increased secretion that causes diarrhea. Irritability of the muscular coat arises, in general, from over-sensitiveness of the nerves supplying it, and they may be excited by almost any condition that affects the central nervous system. Extreme nervousness and excitement are often accompanied by diarrhea and some persons cannot pass through any

nervous crisis without an attack of it. Still another cause of diarrhea is the presence of too much coarse food in the intestines. The coarse articles of food that relieve constipation sometimes excite an over-activity of the bowels and cause diarrhea. When diarrhea is due to cold or to nervous excitement, it will subside as soon as the cause is removed, but when it comes from improper food, there must be a change of diet. In such a case as this it is necessary to leave off all fruit, all green or canned vegetables, as well as bread, unless it is toasted, and keep for a few days to a restricted diet consisting of lean meat, milk, crackers, toast, and rice. If this does not relieve the trouble, a doctor should be sent for. Sometimes a violent chill or some peculiarly improper food will cause an attack of violent diarrhea, known as *cholera morbus*, in which the patient suffers great pain in the abdomen, with nausea and vomiting. In old people or delicate people these attacks are sometimes dangerous from their violence and the sudden exhaustion that accompanies them, but in a vigorous young girl there is no cause for alarm. A doctor should be sent for at once, but if one cannot be had for some time, the attack can usually be relieved by paregoric.

Catching cold is a very common ailment and one that varies extremely in importance, from a slight cold in the head to a severe cold on the chest ending in bronchitis. There can be no doubt that a cold,

whether in the head or on the chest, is due to infection from some germ, but these germs, whatever they are, do not seem to act without some exposure that gives them a favorable opportunity to enter and develop. Exposure to cold from a sudden drop in the temperature or from getting wet chills the surface of the body and if the chill is not followed by a speedy reaction, such as we excite after a cold bath by means of brisk friction, the internal mucous membranes will get into a congested condition that affords a favorable soil for the reception and growth of bacteria, which are always present in the atmosphere.

An ordinary cold in the head begins in the back of the nose and the upper part of the throat, and goes no further down, but if the infection takes a strong hold, it will spread from its first situation and extend down the throat into the bronchial tubes leading to the lungs, creating more or less inflammation, and causing the so-called "chest cold" which is really a mild bronchitis. In severe cases the inflammation extends into the smaller bronchial tubes and then we have an attack of bronchitis, as we usually understand it, accompanied by fever and other symptoms of illness. A slight degree of fever is usually present with any cold, but it only becomes marked when the inflammation has extended into the smaller bronchial tubes. With delicate persons the cold will sometimes begin in the bronchial tubes without going through the preliminary

stage in the head ; and when it does so, the case is more serious. The usual course of all colds is first a stage of dryness, when the glands in the mucous membrane do not act at all, and then another when the inflammation begins to clear up and the improvement is shown by an increased secretion from the mucous glands. At this stage the cough, set up by the irritation of the mucous membrane, becomes loose, and there is much expectoration of the increased secretion.

The best thing to do for a cold is to avoid taking it. A great deal can be done to prevent colds by training the body in healthy habits, by exercising discretion in protection against chills, and by avoiding coddling. A cold bath every morning, with brisk friction after it, is one of the best means of hardening the body against chill. A woolen garment of some kind should be worn next the skin, and abundance of warm outer clothing put on when going into the outside air. So long as these essentials are observed, there need be no hesitation about going out in all weathers ; on the contrary, nothing encourages taking cold so much as shutting oneself up in the house for fear of catching it. Even a wetting will not do much harm, if the wet clothes are removed at once and the body rubbed as it is after a bath. Wet clothes, however, and wet shoes and stockings, in particular, must never be allowed to dry on the feet ; the chilliness and depression of vitality that result are the most favorable condi-

tion possible for the invasion of the infection. Sleeping with the windows open is another preventive of great value. The germs that cause infection are present in the air of houses much more than they are out of doors, and the more careful we are about the sweeping, dusting, and ventilation of our houses, the less will we catch cold. Public places, in especial, are favorable to colds, because there is always much dust in them.

A cold having once been taken, there are various ways of treating it. Some persons find a good sized dose of quinine taken at the outset has a marked effect in breaking it up. Others find that spraying the nose with an antiseptic solution of some kind, or touching the mucous membrane of the nose with a medicated pencil does great good. Other people again think nothing so sure to be efficacious as a Dover's powder, provided they can remain in bed next day, since the effect of the opium in these powders is to make the sweat glands act profusely. Unless a cold is broken up at the very beginning, it will run through a definite course, the length of which varies with different people, from one day to ten. If a cold lasts longer than two weeks, a doctor should always be sent for, and he should be sent for in the beginning, if the condition seems at all serious, or the fever is high.

Indigestion is a word that covers such a multitude of conditions that it is difficult to discuss. The name

means simply want of digestion, but the place at which the digestive process is wanting in activity may be situated anywhere in the alimentary tract. The three most common forms of indigestion, from the point of view of situation, are: gastric indigestion, where the trouble is situated in the stomach; intestinal indigestion, where it is in the intestine; and derangement of the liver, when we have the so-called biliousness. In gastric indigestion there is more or less discomfort and actual pain over the region of the stomach, that is to say, at about the waist line, and a little above it, accompanied, it may be, by a gnawing sensation. Sometimes there is constipation; sometimes there is no disturbance of the bowels at all. In intestinal indigestion, the pain, if there is any, is situated in the abdomen; sometimes it is a dull soreness, sometimes it resembles colic. In this form of indigestion there is almost always diarrhea. When the liver is out of order, there may be a dull heavy pain beneath the right shoulder-blade, and there is always more or less headache, drowsiness, and sometimes nausea. The bowels are usually constipated and the actions are often pale in color, or, it may be, quite white. In all forms of indigestion, the appetite may be more or less impaired, or it may be just as usual.

It is not well to take medicine for indigestion without a doctor's advice, but a good deal can be done to help it by regulating the diet. A milk diet for a few

days often does good in all forms of digestive trouble. Intestinal indigestion is the most serious form and unless it speedily improves a doctor should be consulted. When the liver is at fault, a dose of calomel can be safely tried, in powders or granules of one-eighth of a grain each, repeated every hour or half-hour until eight have been taken, and followed next morning by some sort of saline laxative, such as a seidlitz powder, a glass of Apenta water, or some Epsom salts. The digestion is much influenced by the nervous system, and for this reason it is often upset at the regular periods in young girls. There is nothing to be done in such cases, except regulate the diet for a few days, but it is well to understand clearly why digestive disturbance should appear at these times, in order that no anxiety may be felt concerning them.

Over-fatigue in any marked degree is not by any means a minor ailment, for its results as regards the nervous system are often of a most serious nature. But these severe manifestations would rarely occur if the first symptoms of over-fatigue received due attention, and it is these early indications that are suited for consideration here.

One of the earliest and most significant signs of over-fatigue is disturbed sleep, which may manifest itself in one of three ways: sleeplessness, unquiet sleep, and undue drowsiness. The first of the three, want of sleep, is by far the most common. A girl finds

that she cannot go to sleep for hours after she goes to bed or else she wakes up at some time during the night, generally towards early morning, and cannot get to sleep again.

There are other girls who, when they are over-tired, do not lose any part of their night's rest, but their sleep is so restless, uneasy, and troubled, that it does not refresh them in the least and they get up in the morning quite exhausted and feeling as if they had walked over a ploughed field. In still another class of people, especially young girls, fatigue shows itself in a craving for more than the usual amount of sleep. Girls of this type find it gets more and more difficult to get up at their usual hour, they cannot keep awake until their usual bedtime, and they drop asleep at odd moments all through the day. Want of sleep is always recognized as a sign of over-fatigue, which is fortunate since it is the most serious of the different forms of disturbance, but it is a pity that the other two conditions are not sufficiently appreciated, for they too contain no uncertain note of warning.

Another sign of over-fatigue is a feeling of effort, either mental or physical, out of all proportion to what is really required. In bad cases, this may reach such a point that it is an almost impossible effort to put on one's shoes in the morning or to decide between two books to be taken out of a library. The milder forms are hardly perceptible, but the subject herself can tell,

if she allows herself to notice, that she has a feeling of undue exertion in regard to something or other. She may feel it only at the end of the day when she is tired, or only with certain special duties, but it is there. Still another symptom is that work takes longer than it ought to do, or has ever done before. Inability to rest when the time comes is a most significant sign of over-fatigue. Just at the time that fatigue is greatest and rest is most important it will seem to the fatigued person that it is absolutely impossible for her to put the work aside, or if she forces herself to do so, she cannot take her thoughts off it. Then it may be that the next day, when she is rested, she will suddenly find her mind again under her own control. The condition of a girl's own spirits and temper are also an excellent measure of fatigue. If she finds herself becoming irritable with every trifle, attaching undue importance to a trifling error, or imagining fancied slights and misunderstanding, her fatigue is greater than it ought to be, whether the work is too heavy or not. This is a point that girls need especially to remember, namely, that the standard by which fatigue must be judged is the condition of the individual nervous system, not the amount of work done. One girl can do with ease what for another girl is far too much; furthermore, some kinds of work are more fatiguing to each individual than others and distasteful work is always more fatiguing than what

is congenial. The only real test is the condition of the nervous system, and the signs by which its condition may be recognized are those just given, as well as others of less importance, for which there is no space here. Nature gives these warnings as signals of danger ahead, in order that the worker may recognize how much her nervous system is being affected by her work and protect herself from injury. If she disregards them, she does so at her own risk.

If these warnings were always acted upon in time, there would be much fewer causes of nervous prostration, to say nothing of other affections associated with over-fatigue, and if young girls just beginning to work for themselves, will only be wise in time, the years, as they go by, will not be filled, as they so often are, by discouragement and pressure. As regards the best method of taking precautions, I know of no place where such excellent advice upon the subject can be found than in an article by Dr. Floyd M. Crandall in the *World's Work* for February, 1903. The paper is written for men, but it contains little or nothing that is not as appropriate for women, and the principal points are so much better expressed by him than they could possibly be by me, that I shall take the liberty of quoting a few on which he lays especial stress.

"Do not keep too many irons in the fire. The watching each one demands additional concentration

and adds to mental loss. . . . Men often keep themselves keyed up to such a pitch that they use up as much vital force in doing routine work and unimportant details as in negotiating great transactions. . . . It is unwise to assume so much business that one is obliged to labor up to the full extent of one's powers. It is an insane captain who loads his vessel to the water line because he is lying in a quiet harbor. . . . Specialism has come to be a characteristic of modern life. But where specialism goes, there goes the tendency to fall into a rut, and a rut is a very bad thing to fall into. . . . To keep out of ruts you must begin early in life. Begin by reading a good daily newspaper. This contains a general education that cannot be obtained in the same time from any other source, with one or two good monthly magazines as well, and fiction, history, general literature. . . . Irregular hours, too little sleep, and faulty diet are the factors in most breakdowns. . . . A breakdown is by no means a necessary result of our intense modern life. There is more to provoke it than there ever was before, but at the same time we have more means at our hand to prevent it, if we will utilize them."

Before concluding the subject of minor ailments, it seems only right to say a word in regard to the risks that attend the use of many popular remedies sold for their relief. I have already spoken of the danger in

headache remedies, and I will now take it up a little more in detail. These remedies owe their efficacy in almost all cases to some one of the *coal-tars*, a class of remedies that came into use about twenty-five years ago. At first they were welcomed by physicians, who found that they gave greater relief to pain than anything else except opium, and although they could not take the place of opium in severe suffering, they offered promise of relief in many forms of moderate pain, where the use of opium is not usually justifiable. But it soon appeared that the coal-tars have all of them a tendency to depress the action of the heart and that their use was sometimes followed by heart failure, which fact obliged physicians to be extremely cautious in prescribing them. Then, as they became more widely known, it proved that many people possessed a peculiar susceptibility to them, so that they were made ill by an ordinary dose of any one of them. Idiosyncrasies of this kind are met with in all medicines, but they are extremely rare; the peculiarity with the coal-tars is that in their case they seem to be quite common.

There are a great number of these coal-tars. Phenacetin is one, antifebrin is another, acetanilid a third, and many others, whose names are only known to persons specially concerned. Almost all headache remedies contain some one of these coal-tars, and those more commonly known can be purchased un-

combined — phenacetin, for example, is often sold for the relief of headache, and is used everywhere quite widely, because the patent on it has recently expired, and it is cheap. Now it is plain that if a person takes a headache remedy containing a coal-tar, the ingredients of which she does not know, and should happen to have an idiosyncrasy which causes it to depress the heart unduly, she will certainly suffer from it, and may do so very seriously. For the dose of the coal-tar, whichever it may be, contained in the headache remedy is always what the ordinary person is supposed to take. A physician in giving the same thing would begin with a small dose and watch carefully for possible signs of harm, but when it is contained in a patent medicine, there is no such safeguard.

Another danger that lurks in popular remedies is that many of them contain opium or alcohol, and the risk of acquiring the drug habit in this way is known to be great. Many a girl who takes a tonic that she believes is doing her a great deal of good, feels better only from the stimulus of the alcohol or the opium, or some other stimulant, such as cocain, that it contains, without her knowing it. Some idea of the amount of alcohol in certain patent medicines sold as tonics or for the relief of pain may be obtained from the percentages found on their analysis by the Massachusetts State Board Analyst.

Lydia Pinkham's Vegetable Compound contains 20.6

per cent of alcohol; Peruna contains 28.5 per cent; Paine's Celery Compound 21 per cent; and Schenck's Sea-weed Tonic, advertised explicitly as "*entirely harmless*," contains 19.5 per cent. I have no exact figures such as these in the case of opium, but it is well known that many remedies, especially those for the relief of pain, do contain some form of it, as well as cocain or caffen.

The new pure food and drug law, recently passed, affords a certain amount of protection from these medicines, but it is only partial. This law requires that the label on the bottle or box of every patent medicine shall state distinctly the quantity and proportion, if any, of alcohol, morphin, opium, cocain, and various other specified drugs or their derivatives contained in it. But many people, not by any means ignorant, do not know the meaning of the names stated. Very few of the coal-tars in the headache remedies, for instance, would be recognized, even if the risks of the well-known ones were understood. So with some of the derivatives of opium. The word itself, and its dangers, is recognized by everyone, but not all of us know that codein is its derivative, even if we understand that morphin is so. Furthermore, the law does not require the statement as to ingredients to be made in print of any special size, and it is easy to make it inconspicuous. No doubt the law is a step in the right direction, and

it is not without benefit, but the protection afforded by it is far from complete. The only safety in taking a patent medicine is to find out from a physician whether it is safe to do so, and in this case, he may as well be asked for a prescription.

In conclusion, it may be said that minor ailments are better treated by prevention than cure. The girl who lives in accordance with the laws of health, will have little experience of minor ailments, and if the habit of attention to these laws is formed in girlhood her mature years will be sane and healthy.

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